

MEDICAL JOURNAL OF AUSTRALIA

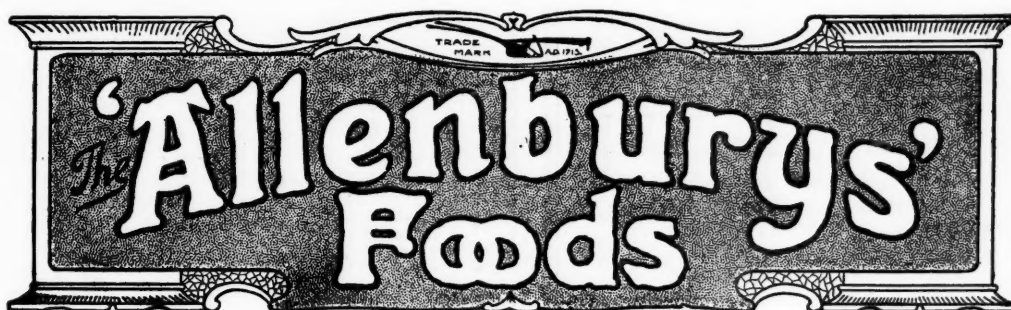
(With which "The Australasian Medical Gazette," and "The Australian Medical Journal" are incorporated.)

The Journal of the Australian Branches of the British Medical Association.

VOL. I.—3RD YEAR—No. 11.

SYDNEY: SATURDAY, MARCH 11, 1916.

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THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. I.—3RD YEAR.

SYDNEY: MARCH 11, 1916.

No. 11.

THE MCKAY-LEWISOHN METHOD OF BLOOD TRANSFUSION.

By W. J. Stewart McKay, M.B., M.Ch., B.Sc.,
Senior Surgeon, Lewisham Hospital, Sydney.

Richard Lewisohn, of New York, has recently published (*Surgery, Gynaecology and Obstetrics*, July, 1915) a paper entitled "Blood Transfusion by the Citrate Method."

In this communication he advocates a method of blood transfusion, which he claims to be original, and the object of my paper is to point out, in the first place that I published in 1907 a method of blood transfusion which is almost identical with his method; and in the second place I wish to show that if Lewisohn's method and mine are combined, the result is a simple, practical, and perfect method of blood transfusion.

Lewisohn began his work, as I did, by seeking to find a chemical substance which would retard the coagulation of the blood of the donor for a period, so as to guarantee a safe transfer of the blood from the donor to the receiver; always bearing in mind that the substance to be chosen had to be conditionally atoxic, in order that large transfusions of blood could be performed with perfect safety. He knew that there were several anti-coagulating substances, well known in physiological chemistry, such as hirudin (leech extract), sodium citrate, sodium oxalate, peptone and glucose. He began his work by testing hirudin, and found that the results were not satisfactory. After his experiments with hirudin he tried sodium citrate to test its possible usefulness for his purpose. He says in his paper:—

When I began my experiments with the citrate method, I looked over the current literature, but was unable to find any reference to any work done along these lines. After my work had come to a successful conclusion, I found that a paper published by Hustin (*Ann. et Bull. Soc. Roy. de Sciences Méd. et Nat., Bruxelles*, 1914, No. 4, 104) had escaped my notice. It appears from this paper that the priority not only for taking up this problem in a series of animal experiments, but in applying it successfully in a case of human blood transfusion, belongs to Hustin, though his method, as we shall see later, limited its usefulness to small transfusions.

Lewisohn takes no notice of a paper which I published under the title of "The Effect of Blood Transfusion on a Patient with Puerperal Septicæmia," published in the *American Journal of Obstetrics*, October, 1907.

The object of my paper was to show that the rigors of puerperal septicæmia might be abolished by the transfusion of blood, and in order to transfuse blood in this case I invented a method of transfusion, which is almost the method which Lewisohn describes in his paper.

In order to make my claim good, I will give the outline of the method that I advocated in 1907.

The first patient that I tried my method on was one who was suffering from blood poisoning, follow-

ing premature delivery of a seven months fetus. The placenta had not come away satisfactorily; the medical attendant therefore introduced his fingers into the uterus, and, a few days later, when the temperature rose, he curetted the uterus. Three days later (the fifth day after labour) the patient was admitted into the Lewisham Private Hospital. She had a slightly offensive discharge, and was ordered a douche, and antitoxin was injected. On the fourth day after the patient was admitted to the hospital, rigors commenced and continued almost daily for some weeks. It was in the endeavour to abolish these rigors that I hit upon my method of blood transfusion. The rigors, as I have said, began on the fourth day after the patient was admitted to the hospital, and continued almost daily until I administered to her a transfusion of blood and normal saline. After this transfusion, in which not more than a few ounces of blood was employed, the rigors disappeared for six days, and then began again. Thinking that perhaps the salt solution introduced into the blood had brought about the happy result, I opened a vein, and gradually introduced thirty ounces of normal saline, to which one ounce of peroxide of hydrogen had been added. The patient had a most severe rigor forty-eight hours later, the temperature rising to 106° F. On the day following this rigor, blood and normal saline were transfused. The amount of blood used on this occasion was about ten ounces, and the amount of saline was about twenty ounces. After this transfusion, the patient had no more rigors; she remained free from April 7th until the day she died, April 19th. During this time the pulse and temperature improved, and the patient progressed so rapidly that she was allowed to sit up in bed, supported by a bed rest; while in this posture she fainted, and died in a few minutes.

When I determined to try transfusion in this case, it was necessary to invent a method which would guard the donor from any possible infection from the receiver. In order to bring about this result, I carried out the following procedure, which I described in the paper referred to above.

Apparatus Required for Transfusion.

(a) A glass cannula; (b) four feet of rubber tubing; (c) glass funnel, holding six ounces; (d) fixation forceps, with fine teeth and a spring catch; (e) scissors, scalpel, silk ligature, flat probe; (f) solution of cocaine; (g) warm normal saline solution.

The glass cannula that is introduced into the receiver's vein should be two inches in length. One end is drawn out into a fine point. A little over half an inch from the fine extremity two small knobs of glass are fused into the sides of the tube.

Steps in the Operation of Transfusion.

(a) The skin of the donor is sterilized over the region of the median cephalic and basilic veins. (b)

A small quantity of cocaine solution (5%) is injected, and the vein is exposed, after which a flat probe is slipped under it. (c) The arm of the receiver is prepared in the same way, and the median basilic, or cephalic, vein having been selected, a flat probe is slipped under the vein and a silk ligature is passed under the vein. (d) An assistant having fixed the rubber tubing to the glass cannula and to the funnel, fills the latter with salt solution, which in turn fills the rubber tube and the cannula. (e) The vein of the receiver is seized in the teeth of the fine forceps and an opening is made with a pair of fine, sharp scissors. The forceps enables the operator to pull up the tiny lid in the wall of the vein, while he rapidly introduces the glass cannula through the opening. Immediately the cannula is successfully introduced, the assistant ties the silk ligature firmly around the vein and cannula, and then winds the free ends of the silk around the nobs on the side of the cannula, so as to prevent the glass cannula being withdrawn from the vein. (f) During all this time the salt solution has been running out of the end of the glass cannula. I found that it was a mistake to introduce the cannula and then attach the rubber and funnel, as the cannula always seemed to get blocked with blood clot. (g) If all has gone well, we shall see that the salt solution gradually descends in the funnel. The donor is now brought up to the bedside, and the vein that we have already exposed is opened by a snip of the scissors. Immediately his blood pours down and falls into the salt solution in the glass funnel, and is carried into the vein of the receiver.

Having found this method of transfusion satisfactory, I tried it in many other cases, and it was tried at the Coast Hospital, near Sydney, in several cases of septicaemia, the result of criminal abortion. Later on, instead of using the donor's vein, I opened the radial artery on several occasions and used that. While the method was on the whole satisfactory, yet a certain amount of blood clot formed in the saline solution, and, in order to get over this difficulty, I tried several modifications of the plan. One of these methods was to use a large glass funnel coated with paraffin to receive the blood in, following out the idea put forward by Kimpton (*Boston Med. and Surg. Journ.*, 1913, CLXIX, 783), and found that this was an improvement. I also used various solutions, and found that by increasing the strength of the salt solution to 1½% the blood did not coagulate as it did at times in the normal solution.

I have used this method for some years, and when in America explained it to Murphy, of Chicago, and Howard Kelly, and they both said that they thought the method excellent, because it enabled the transfusion to be done without any danger to the donor. This is my contribution to blood transfusion. I will now deal with the claims of Lewisohn. His method was put forward in his paper, and I will give it in his own words:—

The technique of the citrate method is so simple that it can be dealt with in a few words.

The donor is put on a table, the tourniquet applied to the arm, and the vein punctured with a cannula. The blood is received in a sterile graduated glass jar (500 c.cm.), containing 25 c.cm. of a 2% sterile solution

of sodium citrate at the bottom. While the blood is running into the glass receptacle, it is well mixed with the citrate solution by means of a glass rod. After 250 c.cm. of blood have been taken, another 25 c.cm. of citrate solution are added. . . . In cases where we expect to take more than 500 c.cm. of blood, we have another glass container (500 c.cm.) ready to be used in exactly the same manner. The glass jar containing the blood is then put aside and covered with a towel to safeguard against contamination. I have not found it necessary to immerse it in hot water, or surround the jar with an asbestos covering. The blood is then taken either into the recipient's room, or the recipient is brought into the operating room. I consider it a great advantage that this method does not require the donor and recipient to be in the same room. . . . Another very great advantage to the citrate method is that there is no connection between the donor and the receiver. The donor is safeguarded against contagion of any disease or infection which the patient may have.

Lewisohn then gives his method of injecting the blood:—

The recipient's vein is then punctured or exposed by a small incision; the cannula is introduced and attached to a salvarsan flask or a glass funnel. It is advisable to fill the rubber tube connection between the flask and cannula with some saline solution, so as to prevent air from getting into the circulation. After the connection is made, the blood is poured into the salvarsan apparatus. In order to prevent sudden over-loading of the circulation, it is advisable (especially in large transfusions) to stop the flow of blood from time to time by compressing the rubber tubing. After the blood has been injected, the cannula is removed, and the transfusion is thus ended.

I now propose, having described the Lewisohn method and my own, to put forward the following, under the title of "The McKay-Lewisohn Method of Blood Transfusion."

The apparatus required for the transfusion is the same as I have described in my former paper. A glass cannula, rubber tubing, a glass funnel, fixation forceps with fine teeth, delicate scissors, scalpel, silk and catgut ligatures, a flat probe with an eye, a 5% solution of cocaine, some hot normal saline, and some 2% sterile solution of sodium citrate, and some sterile graduated glass jars, holding 500 cubic centimetres. The glass cannula (Fig. 1) should be constructed as I have pointed out above; one end drawn out to a fine point, and at a distance of three-quarters of an inch from the fine extremity, two small nobs of glass (Fig. 1) should be fused into the sides of the tube, so that the cannula may be fixed

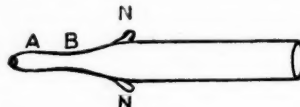


Fig. 1.

Glass Cannula. C, Glass wings behind which the ends of the silk ligature, that fixes the cannula in the vein, may be passed so as to prevent the cannula being pulled out of the vein. The slight swelling, A, and the neck, B, will both aid in keeping the cannula in the vein.

securely into the receiver's vein. The steps in the operation of transfusion will be as follows:—

The skin of the donor is sterilized over the region of the median cephalic and basilic veins, or over the radial artery, at the spot where the pulse is usually felt. A small quantity of cocaine solution is in-

jected, and the vein or artery exposed, after which a probe is slipped under the vessel. The receiver may be in the operation theatre, or may be in

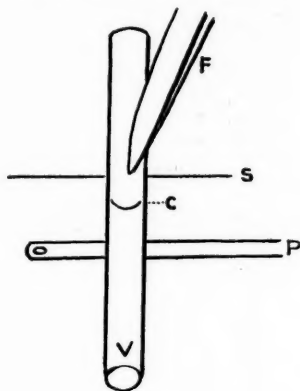


Fig. 2.

The probe, P, is placed under the vein to give the operator more control over the vessel. The silk ligature, S, is placed ready to tie round the neck of the cannula, when the latter is introduced through the opening made at C in the vessel wall. The forceps, F, are fine with small teeth, and steady the vein while it is cut with fine eye scissors.

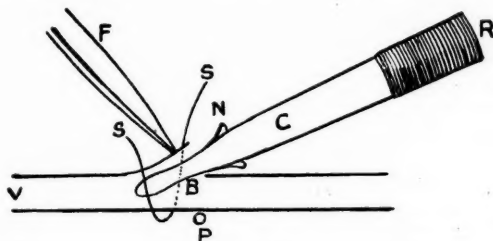


Fig. 3.

The forceps, F, attached to the vein opens up a lid after the cut has been made by the scissors. This enables the cannula, C, to be introduced very easily into the vein, V. The silk, S, is then tied round the vein and neck of the cannula, B, and the ends of the silk are then brought back and passed round the cannula beyond the nobs, N, and then tied; the nobs, N, prevent the silk from slipping.

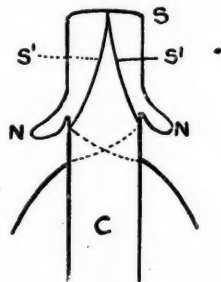


Fig. 4.

This shows the method of fixing the cannula in the vein by means of the silk ligature, S, whose ends, S', are brought back again to embrace the cannula, C, beyond the nobs, N, which prevent the silk slipping when it is tied round C, and prevents the cannula being pulled out of the vein.

another room. The skin of the receiver's arm is prepared in the same way as the donor's. Then the

median basilic, or cephalic vein having been selected, cocaine is injected, an incision is made parallel to the vein for three-quarters of an inch, and when the vein is exposed, a probe with an eye is slipped under the vein, and a silk ligature is put into the eye of the probe, and the probe is withdrawn (Fig. 2). The ligature is then under the vein. The probe is again introduced, and rests side by side with the silk ligature. The assistant, having fixed the rubber tubing to the glass cannula and to the funnel, fills the latter with salt solution, which in turn fills the rubber tubing and the cannula. The vein of the receiver is seized in the teeth of the fine forceps (Fig. 2), and an opening is made with a pair of fine, sharp, eye scissors. The forceps enables the operator to pull up the tiny lid in the wall of the vein (Fig. 3), while he rapidly introduces the glass cannula through the opening. Immediately the cannula is successfully introduced, the assistant ties the silk ligature (Fig. 3 S), which was previously placed under the vein, firmly around the cannula, then winds the free ends (Fig. 4 S') of the silk around the cannula, beyond the nobs (Fig. 4) and ties them, so as to prevent the cannula being withdrawn from the vein; the nobs prevent the silk slipping. During all this time, the salt solution has been running out of the end of the glass cannula. It is a mistake to introduce the cannula, and then attach the rubber and funnel, as the cannula always seems to get plugged with blood clot. If all has gone well, we shall see the salt solution gradually descending in the funnel, and we know then that it is running freely into the receiver's vein. Some blood having meanwhile been collected from the donor, is run into a sterile glass jar of 500 c.cm. capacity. To this blood 50 c.cm. of 2% sterile solution of sodium citrate is added. The citrated blood is now emptied into the funnel, which contains the normal saline solution, and this blood is carried down the rubber pipe into the receiver's vein. We may pour the remainder of the blood into the funnel, but it is a better plan to pour a little normal saline in and then keep pouring a little blood into this saline. The receiver in this way receives not only the blood but normal saline, which is of considerable value, if we are dealing with a case of hæmorrhage. The saline also prevents over-loading of the circulation too quickly with the new blood.

If we wish to introduce more than 500 c.cm. we merely have to empty another jar of blood, which has been collected in the same way as the first jar. When the fluid in the funnel is almost exhausted, an assistant clamps the rubber tubing between his fingers. The silk ligature, which holds the glass cannula in the vein, is severed, and catgut ligatures are tied around the vein, above and below the opening made for the cannula. The incision in the receiver's arm is then closed with a few horse-hair stitches.

Conclusions.

When we come to study the method advocated by Lewisohn and that advocated by myself, we find there are three things in common in these two methods.

Firstly, we both sought a chemical body that would delay the coagulation of blood sufficiently to

allow it to be transferred from the donor to the receiver: I used a saline solution; Lewisohn used a solution of sodium citrate.

In the second place, Lewisohn considers that one of the great advantages of his citrate method is that "as there is no connexion between the donor and the recipient, the donor is safeguarded against contagion of any disease or infection which the patient may have." I made the same claim for my method in 1907.

Thirdly, the plan adopted by Lewisohn of introducing the blood into the recipient by means of a cannula, rubber tube and reservoir, even to the detail of first filling his apparatus with saline solution, is the same plan that I originally put forward in my paper.

It is because I have adopted the suggestion originally put forth by Hustin, and later on by Lewisohn, of adding citrate of sodium to the blood before it is mixed with the normal saline in the funnel of my apparatus, that I have called this method of transfusion "The McKay-Lewisohn Method of Blood Transfusion."

CEREBRO-SPINAL MENINGITIS.¹

By A. Sandison, M.D., Ch.B., Edin.,
Senior Resident Medical Officer, District Hospital, Ballarat.

I must thank you for the honour you have done me in asking me to open the discussion on the subject of cerebro-spinal meningitis. This disease has been brought before the public eye of late, although I understand it has been quite prevalent since the Boer war.

I must apologise that I am unable, on account of the smallness of my material, and lack of time, to deal with the subject in the same detailed manner as it has been dealt with in articles which have appeared in the *Journal* recently, and which, no doubt, you have all read.

In all, we have treated since the end of August 18 cases of cerebro-spinal meningitis. The ages of the patients varied from 4 to 52 years. The mode of onset in many cases was difficult to ascertain, as the majority of the patients came in unconscious, and were in a confused state of mind. In several instances the onset was sudden; the patient, having been quite well a few hours before, was suddenly seized with severe headache and vomiting, and occasionally shivers. In others the onset was more gradual; the patient was off-colour for a few days, or had a slight cold, and then gradually developed symptoms of meningitis later.

In 25% of the cases seen a favourable termination occurred in three to four days by crisis, and the patients have been discharged apparently cured in about three weeks. In 30% the patients died. The deaths occurred within five days of admission. Two of the patients had shown definite signs of improvement at first, but pneumonia developed later, and they died in a few hours. Of the remainder, two improved for about a week, and then lapsed into a mental stuporose condition lasting from three to four

weeks. The temperature was very irregular. After receiving injections of soamin they seemed to improve steadily, and were discharged about three weeks later. Two other patients have been in hospital for upwards of nine weeks, and have remained *in statu quo* for the last six weeks. They seemed to improve for a time, and then lapsed into a condition of mental impairment. It looked as if they were suffering from toxæmia. The remaining patients are at present under treatment, and all are improving. The fatal cases were acute from the start.

As regards symptoms, vomiting as an early symptom was not often seen. Headache varied a good deal. As a rule it was severe at first, but was always relieved either by large doses of aspirin, or by lumbar puncture. The majority of the patients were either wildly delirious at the start or markedly comatose. It was not necessary to employ restraint, except in a few cases. As a rule those who had been delirious or comatose regained consciousness after lumbar puncture or injections of soamin. The rash has only been present in two of our cases. It appeared on the second day as a petechial eruption over the trunk and thighs, and on the following day it spread on to the face, arms and neck.

The temperature and pulse varied. In the majority of cases there was a moderate elevation of temperature; in one case it reached 104° F. The fever as a rule subsided in a week, but in the chronic cases it continued a very irregular course, with considerable swing. The pulse-rate varied from 60 to about 130 per minute, and was usually about 110. It was often irregular.

The blood pressure in many cases was distinctly low, being about 110-120; in one case it reached 150.

Herpes labialis was present in two severe cases. Both patients recovered.

Emaciation was very marked in every case, notwithstanding the fact that every patient took food well.

The bowels in the early stages were constipated, but in acute cases and in those that became chronic incontinence was common. Retention of urine was very common when the patient was unconscious. In the chronic stage incontinence was noted.

As regards the meningitic symptoms, headache and vomiting occur early, and tend to disappear within a short time. The most common signs are Kernig's, and stiffness of the muscles of back of neck. The latter sign has been the most constant; it varies in degree from slight tenderness on attempting to move the head forwards, to marked opisthotonos, the latter being more marked in children. As convalescence appears, the stiffness diminishes. Kernig's sign on the other hand may be present for three to five weeks after convalescence has set in.

Brudzinski's sign was present in 50% of our cases. When the patient is lying supine, and both legs are extended, if one leg is flexed on the thigh, the other leg follows suit. Another sign which is elicited at times is the following:—The patient is placed in a supine position, and on an attempt being made to flex the head forward, the legs will become flexed on the thigh, and the thighs on the abdomen,

¹ Read at a meeting of the Bendigo Division of the Victorian Branch of the British Medical Association, on November 18, 1915.

The reflexes are exaggerated, particularly the superficial reflexes in the early stages, when the affection is very acute. At a later stage they are lost, as the patient becomes comatose. Babinski's sign was present in only four cases.

As regards the cranial nerves, optic neuritis was not noticed in any cases. The sixth nerve was involved in three cases, but the symptoms cleared up rapidly. Diplopia was seen in three cases, but it also soon disappeared. Conjunctivitis was present in a few cases.

Diagnosis.—In the early stages it is sometimes very difficult to diagnose cerebro-spinal meningitis from influenza, as many cases commence with headache, sore throat and a certain amount of stiffness of the neck. As a rule the temperature is higher in influenza at an early stage than in meningitis. The complete symptom-complex, as described in the text-books, is rarely seen, and I think considerable unnecessary hesitation in arriving at an early diagnosis frequently occurs; signs and symptoms, which may never appear, are waited for. A positive diagnosis, I think, may safely be made when there is a sudden onset with either headache or vomiting, associated with Kernig's sign and some stiffness of the neck. A rash may or may not be present. If the toxæmia is very marked Kernig's sign may be absent. This was the case in one of our patients. As a rule the mental condition is characteristic. At first the patient is drowsy, will not answer questions, and rapidly becomes comatose or delirious. The position of the patient in bed is characteristic. He lies curled up, resents being touched at all, and later may struggle and attempt to get out of bed. Lumbar puncture and examination of fluid settles the diagnosis, but as a rule the condition can be recognized with a high degree of certainty without recourse to this examination. It is difficult to cultivate the meningococcus outside the laboratory, as the germ will not live long unless at the body temperature. The cerebro-spinal fluid escapes on lumbar puncture being carried out under increased pressure and in early stages, is clear. Later on it becomes markedly turbid. As the patient's condition improves it clears up, and becomes less in amount.

Ætiology.—As regards the ætiology and possible source of infection, it is very difficult to make definite statements. In all our early cases some connexion with the camp could be traced. It is impossible to determine whether the disease was actually started by direct contact with soldiers or not. As far as the Ballarat camp was concerned, it seemed until a few days ago that the epidemic had almost ended, as we had had no new cases among the soldiers or among persons in any way connected with soldiers for over a month. The most recent cases from Ballarat and district have been civilian. One of the last cases admitted is interesting from an ætiological point of view. A child 4 years of age, whose father was a soldier in one of the Melbourne camps, came up to the outpatient department about midday. The child had been ill for a few hours. The diagnosis was uncertain. The child was taken to see its grandmother, but returned to the hospital in about six hours much worse, with

definite meningitic symptoms. Swabs were taken from the throats of both the father and the mother, who had been in constant attendance upon the child. No meningococci were found. Gram-negative diplococci, however, were grown from the fauces of the grandmother, who had been in contact with the patient for only six hours.

Treatment.—All the patients were isolated as early as possible. Those in attendance wore gowns and masks. The treatment consisted in keeping the bowels open by aperients. Each patient was placed on urotropin until signs of hæmaturia manifested themselves. Gargles of hydrogen peroxide 10 vol. %, and nasal sprays of argyrol 9% and hydrogen peroxide 1 vol. % were employed. Inhalations of iodine grms. 12, thymol 0.35 grms., guaiacoi 2 grms., and alcohol (60%) 2.00 grms. were also used. The patients were fed up to the limit of their digestion. I am of opinion that this is important. They should have as much food as they can possibly take. If the pulse becomes weak and rapid stimulants should be given freely. Lumbar puncture was carried out daily. The amount withdrawn varied from 10 c.cm. to 60 c.cm. Normal horse serum was then run into the spinal theca, the quantity used being determined by the amount of fluid withdrawn. As a rule the volume of serum injected was equal to half the volume of the cerebro-spinal fluid withdrawn. This procedure was carried out daily for four days, and more frequently if there were signs of compression. The results from this line of treatment were not satisfactory. As no antimeningococcal serum was to hand I decided to try intramuscular injections of soamin, which had been favourably reported on in the *British Medical Journal*. I commenced by giving intramuscular injections into the *gluteus maximus* of grs. iii to an adult, and grs i½ to a child. This was repeated the next day, and again on the fourth day, and if the temperature had not dropped to normal it was again administered on about the seventh day. In the few cases in which I have tried the drug it seemed to exercise an inhibitory effect on the meningococci. Three patients, who were unconscious and delirious on admission, regained consciousness after the third day, and were discharged in three weeks. Two other patients previously mentioned, who had lapsed into an apparently chronic condition after lumbar puncture had been practised repeatedly, and who were running an irregular temperature, improved steadily after injection. The temperature became normal, and the patients have since been discharged. I have tried anti-meningococcal serum in one case, with no apparent improvement, and as I was under the impression that no more could be procured I have not used it again. I have tried soamin altogether in ten cases, with encouraging results. I understand that it has not been extensively used in Melbourne on account of the risk of optic atrophy developing. So far I have not detected any signs of implication of the optic nerve. It appears to me that as the amount given (grs. xv-xx) is so small, and is spread over so short a space of time, that optic atrophy need not be feared. In the report published in the *British Medical Journal* on 150 cases the writer had

not seen any ill effects from its use. I am therefore of opinion that it is worth a trial. A few words in regard to the treatment of special symptoms may be added. Headache is generally relieved by aspirin (grs. xx), repeated if necessary after two hours. Delirium is relieved by warm sponging. Should this fail to bring relief, potassium bromide, grs. xx., and chloral grs. x., may be given, and repeated if necessary. As a rule, lumbar puncture quiets the patients; squint and diplopia disappear spontaneously. Conjunctivitis clears up with a lotion of zinc sulphate and boric acid.

Complications.—The commonest complications are pneumonia, inflammation of large joints, endocarditis, and in the chronic cases hydrocephalus. Pneumonia is generally a very fatal complication, and the patient usually succumbs rapidly to it. We had two patients who died within twelve hours of the onset. Involvement of the joints frequently takes the form of a synovitis, and seldom develops into an arthritis. It is a complication which, as a rule, clears up spontaneously in a few days, and requires no surgical interference. The utility of the joint is seldom much impaired.

Hydrocephalus is rare. We have had no cases here.

Reports of Cases.

A FAMILY OF OCCULT SYPHILIS.

By W. A. Lind, M.B., B.S.,
Pathologist, Lunacy Department, Victoria.

The following is an interesting case, which gives strength to the opinion that there is a much larger proportion of our community suffering from occult syphilis than is generally credited. It is only when peculiar circumstances, such as occurred in this case, bring to light instances of this nature that we can produce proof that these cases of undetected syphilis do exist. Judging by the *post-mortem* findings in cases of insanity, it seems moreover that it is these victims of occult syphilis, who supply a large proportion of the inmates of the hospitals for the insane, through the nerve vulnerability which that disease produces. The notes of this case have been supplied by Dr. T. J. W. Kenny, of South Melbourne, and Dr. Gamble, Medical Superintendent of the Hospital for Insane, Kew. The history is as follows:—

Mrs. X. was received at Kew as a transfer from the Receiving House, Royal Park. She was 46 years of age on reception. The diagnosis of general paralysis of the insane was made. Her serum gave a positive Wassermann reaction. Her husband asked for the diagnosis and cause of the disease. When he was told that his wife's illness was due to syphilis he was very much distressed, as he was certain that he was quite innocent of being the cause of the infection. He was inclined to doubt the diagnosis, and consulted his medical adviser, Dr. Kenny, who communicated with Dr. Gamble, and in order to satisfy the husband, Dr. Kenny was permitted to make an independent examination. This he did, and after receiving the positive report from an independent blood examination, he communicated the result to the husband. The husband's serum gave a negative Wassermann. The blood of all the children was then sent for examination, with the following result:—

1. A. Girl, aet. 20, positive.
2. B. Boy, aet. 17, negative.
3. C. Girl, aet. 14, negative.
4. D. Girl, aet. 10, positive.
5. E. Boy, aet. 4, positive.

Hitherto the family has passed as quite normal; there was never any cause for suspecting the reverse. With the

husband's assistance the following history was obtained, and seems to be the only solution of the infection:—

When Mrs. X.'s child was a month old she tried to foster-mother the child of a friend of hers. This child tried the breast twice, but would not suck (it is not stated whether snuffles were present), and later on died of marasmus. The mother died within two years of this, and it has not so far been possible to trace the father. Very soon after the attempt to suckle the friend's child, Mrs. X. developed sore breasts, and her own child, which had just been vaccinated, developed sores on the mouth while the healing of the vaccination marks took twelve months (a plum for anti-vaccinationists). The husband has never known the mother to be ill either before or since that occasion.

A brief description of the children is as follows:—

A, girl, aet. 20, height 5ft. 1½in., weight 8 stone 11 lbs., eyes myopic, astigmatic; she wears glasses; teeth peg-top. She has lost several upper and lower molars. The heart is normal. Menses started at 14 years of age. She has a flabby skin and fair bust. The blood is pink and watery. No deformities are noted.

B, boy, aet. 17, height 5ft. 6½in., weight 9 stone 5 lbs. He has a large frame, and is a strong labourer. His blood is pink and thin. The teeth, etc., good.

C, girl, aet. 14, height 5ft. 4in., weight 8 stone 2 lbs. Menses appeared at 12. She has a strong, big frame. She is apparently quite normal.

D, girl, aet. 10, height 4ft. 4½in., weight 4 stone 8 lbs. The teeth are peg-top. She is inclined to be flabby, and a weakling. The kidneys are not active at any time, even in winter. The heart is normal.

E, boy, aet. 4, height 3ft. 5in., weight 2 stone 12 lbs. The teeth are peg-top, first dentition. The skin is inclined to be flabby. The blood is watery and thin.

The future history of this family would make interesting reading. They will probably marry, and, being themselves the subjects of syphilis, their children are liable to be below standard, possibly epileptics, or sufferers from other neuropathies.

Reviews.

AIDS TO PHYSIOLOGY.

"Aids to Physiology" has been written to assist medical students preparing for examinations in physiology. It is intended to replace a similar work written many years ago by Peyton Beale. The authors are Drs. John Tait and R. A. Krause, who have had much experience of the needs of students at Edinburgh. The series of thirty-seven manuals designed for use by medical students, and named the Students' Aid series, affords a means of refreshing the memory of the student and of economizing his time. They must not be regarded as substitutes for larger treatises. The book shows signs of careful preparation and has been brought well up to date. The language is clear and simple. Although the book deals with the ground-work of physiological knowledge, its scope is by no means elementary. It is surprising what a wealth of information is conveyed by its pages. When the range of works of this character is increased to such proportions there is a danger that the student who regards the passing of an examination as the limit of his studies, will be tempted to rely completely on such a book. The educational value of the scientific study is lost when a subject is presented to the student in this form, as a logical exposition of all the ascertained facts and phenomena. For use with discretion it should be in the hands of every student preparing for an examination.

The attention of Victorian practitioners is directed to the third clause of the Health Act Amendment Act, which provides that a carrier shall be deemed to be suffering from a dangerous infectious or contagious disease. Practitioners will consequently be required to notify all cases of carriers of germs of those diseases which are notifiable in the State.

¹ Aids to Physiology, by John Tait, M.D., D.Sc., and R. A. Krause, M.D., D.Sc.; 1915. London: Baillière, Tindall & Cox; pp. 242, with 52 figures; Foolscape 8vo. Price, Cloth, 3s.; Paper, 2/6.

The Medical Journal of Australia.

SATURDAY, MARCH 11, 1916.

Red Cross Supplies.

The military authorities in Egypt were faced with many difficulties during the Gallipoli campaign, but few were greater than that connected with the transport of men and supplies from the various bases to the peninsula. There has been criticism of the manner in which the transport service was organized and conducted. In his excellent and highly interesting account of the work of the Clearing Casualty Station on the Suvla Beach (see *The Medical Journal of Australia*, February 5, 1916, p. 111, *et seq.*), Major John Corbin describes how they could not get boats to take the wounded off the beach during the day time, and how the food supply was scanty during the first few days after the landing. A few days ago, Mr. Adrian Knox, K.C., when addressing a meeting of the Red Cross Society, spoke of the difficulty experienced in transporting the supplies which the Society had attempted to deliver to the men at the front. He pointed out that they had found it almost impossible to get ships, tugs or lighters to take stores from Cairo or Alexandria to the Gallipoli Peninsula. It was not an uncommon occurrence for cases of Red Cross goods to be brought back to Alexandria after they had been sent to Gallipoli. The keynote of his story was that the military authority had supreme control over hospitals, transports and hospital ships, as well as over the troops in the fighting line, and that "the military authority was thinking only of the fighting man, his food and his ammunition." When the Red Cross Society used its machinery to provide the sick with medical necessities and comforts and the soldiers in the trenches with a few extras, sympathy was extended from those in authority in the Army, but at times very little help. In many cases we learn that medical officers in charge of hospitals or other medical units were wise enough to obtain Red Cross supplies before proceeding to the front, so that, when transports were rare and other means of conveying stores unobtainable, they

were in a favourable position. The immense value of this undertaking to the hospitals in the East and elsewhere needs no emphasizing. Should our troops again be required to carry out a task entailing exposure to heavy dangers from bullets and disease, it is to be hoped that the military authority will recognize the urgent necessity of placing facilities at the disposal of the Red Cross Society and enabling this magnificent organization to bring succour to the wounded and comfort to the sick. The failures of the past should provide lessons for the future, and it is not too much to expect that the military authority should profit by its experience during the Gallipoli campaign. By so doing, much unnecessary suffering may be prevented.

CARRIERS AND CONTACTS.

Legislators are always dependent on the advice of hygienists when determining the provisions of a health measure. Hygienists find that open-minded academic teaching does not suit the purposes of the legislators, and are consequently compelled to throw caution aside and to enter into the realms of speculation. The majority of laws dealing with the control of the public health are based on assumptions, which may or may not be true, but which lack convincing scientific proof. At first sight it would seem as if the assumption of probabilities would be reasonably safe and wise, but when it is considered that these assumptions act as premises on which far-reaching deductions are not infrequently built, the disadvantages become more obvious. We must, however, admit that there is, as a rule, no satisfactory alternative, as long as definite provisions have to be included in Acts of Parliament. A striking instance of the speculative nature of the premises, on which clauses of an Act are based, is to be found in the Amendment to the Victorian Health Act, which was published in last week's issue. The saving point of these clauses is that they are permissive. In the first place, a "carrier" is defined as a person harbouring in his tissues or excretions the virus of an infective disease, although presenting no signs of the disease. Similarly, a "contact" is defined as a person who has been in close proximity within a period of 21 days to a person suffering from an in-

fectious disease, or who has been in any place where there has been such a person within the same period.

The researches of Ledingham, Dean and others have demonstrated that in the case of enteric fever, infection may be conveyed to healthy persons by the vehicle of excretion of so-called carriers. It has, however, not been ascertained under which conditions a carrier is a danger to those in his immediate vicinity. Much of the knowledge possessed in regard to enteric fever carriers has been collected in hospitals for the insane, where the individual concerned is often incapable of exercising reasonable care in connexion with his excretions. In a few instances, a focus has been traced to a carrier in a dairy. In these instances it has been assumed that the hands have become soiled by the infected excretions, but conclusive bacteriological proof of this assumption, as far as we are aware, has never been adduced. It is a matter of extreme difficulty to determine the facts exactly, but in so far as enteric fever is concerned, the potential danger of a carrier must be recognized. It is consequently necessary to assume infectivity in all cases in which bacilli of the disease can be discovered in the fæces. The storage usually takes place in the gall bladder. It is highly probable that many persons harbour a few attenuated typhoid bacilli in their gall bladders for a long period after an attack of fever without ever excreting them in the fæces in sufficient concentration to form a danger.

The case of diphtheria is quite different. The presence of diphtheria bacilli in the fauces of persons, who have recovered from an attack of the disease, or even of persons who have never revealed any clinical manifestations of diphtheria, has been proved wherever diphtheria is epidemic or endemic. But it has not been proved that the disease has been spread by these carriers. Experience teaches that a healthy individual is capable of dealing with a small quantity of germs like diphtheria bacilli. In many of the so-called carriers, who have recovered from an attack a short time before, the bacteriological evidence would suggest that the bacilli are present in small numbers. In those who have not shown signs of the disease, it may be that the virulence of the bacillus is low. Again, in the case of pneumonia, cerebro-spinal meningitis and the like, a great deal

of the present-day teaching is assumed, and has not been proved.

The Victorian Act gives the Board of Health power to restrain or isolate carriers and contacts as defined. In the strict interpretation of the Act, every medical practitioner in general practice is a perpetual contact, and a large number of nurses in the diphtheria wards of hospitals are carriers during the whole period of their service. It is probably necessary that wide powers be given to the health authority, but it would certainly be unnecessary and unwise to exercise these wide powers to as full an extent as they have been granted to the Board of Health in Victoria.

HUMAN MILK.

A scientific knowledge of the principles of dietetics is dependent on the measurement of the amounts and on the determination of the kinds of the different foodstuffs taken during each day or week while the body remains at a constant weight, or increases in weight during the period of growth. The collection of data concerning the composition of the milk of a large number of women should therefore be useful for formulating the needs of the human infant. As yet the number of analyses published for general information is surprisingly few. A further contribution to these slowly accumulating figures has been made by Emmett Holt,¹ Angelia N. Courtney and Helen L. Fales, who have analysed 32 individual samples and 6 composite samples of the milk of American women. The main features of this investigation have been the large quantity of milk collected for analysis, and the attention paid to the inorganic constituents of the ash. The whole of the milk from both breasts during a long period, usually 24 hours, has been used for the chemical examination. Though little information is given as to the efficiency of their methods of collection, it may be of interest to note the variations in the amount collected during each day. A table gives the quantities of milk collected from different individuals on the 14th day after parturition as 215 c.cm., on the 21st day as 975 c.cm., and on the 30th day as 550 c.cm. The amounts collected from 16 other women during the second to the ninth months of lactation are also included. These quantities of milk vary from 500 c.cm. to just over a litre. These figures reveal a wide range of variation in the food supply of growing infants. The investigators state that in every case the mother was suckling a healthy child, which was making good progress. The number of cases examined is so small, and the degree of variation is so extended that no good purpose is served in subjecting these figures to mathematical investigation.

The methods, which have been employed for the analyses, are not very accurate as judged by present

¹ *Amer. Journ. Dis. of Children*, Vol. X., p. 220, 1915.

standards. For example, the protein is estimated from the total content of nitrogen, although it is well known that nitrogenous extractives are present in considerable and varying quantities in human milk. Despite these defects the figures may be compared together. They show the same considerable variations in the figures for total fat noted by Mr. Wardlaw in his examination of human milk in Australia. The figures for total protein in the milk after the first month are low, lying around 1%, and the figures for ash are grouped around 2 per mille. Although large samples, representing 24 or 48 hours' secretion, have been used in this examination, differences between individual figures are noticed on the same scale as in Mr. Wardlaw's paper,² which dealt with small samples representing single meals for the infant. When the composition of the milk is considered in relation to the quantity secreted, it appears that the secretion of a small quantity of milk is not accompanied by an increased percentage of solid constituents, nor does the excretion of a large amount of milk imply a poor quality. The amount of milk secreted and the density do not seem to be related together.

These investigators have also analysed 10 large samples of milk collected at late periods of lactation from the tenth to the twentieth month. When averaged, these figures show a remarkable coincidence with those of the milk collected during the first 10 months of lactation. While the composition of this milk is similar to that secreted at the height of lactation, the quantities of milk secreted in the same time are distinctly less, though there is much variation in the amount secreted by different women.

In recording the results of their analyses of the ash of human milk, these observers have adopted the mode of Schloss, who divided the months of lactation into four periods, a colostrum period lasting until the twelfth day, a transitional period extending to the end of the first month, a period of maturity continuing to the end of the ninth month, and a late period, which might endure to the twentieth month. They find that the amount of ash diminishes on an average from 3 parts per mille to 2 parts per mille during the transitional period. Although the ash is regarded as the most constant component of milks, these analyses show that the figure for the ash of an individual sample may lie with equal probability anywhere within 20% above or below the average figures. In regard to the constituents of the ash of human milk, they appear to be closely similar to those of cow's milk. The average composition of the ash of the samples of human milk under discussion is identical with the averaged composition of the ash of mixed cow's milk, except with regard to the amount of phosphates. Cow's milk usually contains, however, 7 to 8 parts of ash per mille. Such feeding experiments on infants as are available seem to show that the relative proportion of different acids and different bases in milk and food for infants is of more importance than the total concentration of saline ingredients.

A POINT IN MEDICAL ETHICS.

Our attention has been called to the appearance in the columns of the daily press of personal news items concerning patients who have been operated on by well-known surgeons. In some of these instances, the announcement includes the statement that an operation was skilfully or successfully performed by Dr. X. or Y. It has been pointed out on countless occasions in the various medical journals in the British Empire that our conception of proper conduct for a medical practitioner is to avoid all forms of advertisement. It is extremely difficult to deal with these forms of transgression, since in many instances the paragraph is inserted not by the practitioner but by the relatives of the patient, or by some meddlesome newspaper correspondent, who is on the look-out for "copy." When taxed, the practitioner disclaims all responsibility, and is at times even in a position to deny that he had any knowledge of the intention of the person responsible for the paragraph before its publication. It is usually a simple matter to prevent paragraphs of this kind from appearing in the press. A little firmness, a statement that publications of the kind are offensive to the medical profession and a polite request that the name of the surgeon or physician in attendance should not be mentioned in any notice of a patient's illness will nearly always result in the avoidance of the advertisement. The practice of other countries, where practitioners indulge in various forms of advertisement, has no place in the Commonwealth, and we are convinced that Australian practitioners are desirous of maintaining the high standard of British medical ethics. Passive inactivity is not sufficient in these cases. An active step toward the prevention of the occurrence is necessary in many instances. Finally, should the patient, his relatives or the irrepressible reporter ignore the practitioner's wishes in this connexion, the latter should communicate with the Council of his Branch of the British Medical Association immediately he sees an offensive notice, explaining that he took all reasonable steps to prevent its appearance, and disclaiming any knowledge of the action having been contemplated. Good work is a sufficient recommendation. A man who has skill, knowledge and tact does not need any further advertisement. The public knows that a man who advertises systematically cannot rely on his professional attainments to keep up his practice.

WELCOME TO THE HONOURABLE DR. NASH.

The Deputy-President of the New South Wales Legislative Council welcomed, on February 29, 1916, the Honourable J. B. Nash on his return from the front. In a short but hearty speech he told Dr. Nash that every member of the Council knew how well he had discharged the duties which fell to him. The Hon. J. D. Fitzgerald associated himself with the Deputy-President, and stated that their friend, Dr. Nash, had earned the respect and admiration of everyone in the community. In addition to his kindly words of welcome and appreciation addressed to Dr. Nash, he referred to the regrettable illness of Sir Charles Mackellar. The Hon. J. Garland also congratulated the Hon. J. B. Nash on his safe return.

Dr. Nash, who replied briefly, said that he was glad to learn that honourable members were satisfied that he had "performed his small part worthily."

² *Journ. and Proc. Royal Soc., New South Wales*, Vol. XLIX, p. 169, 1915.

Abstracts from Current Medical Literature.

PATHOLOGY.

(92) Gaseous Gangrene Due to B. Œdematiens.

M. Weinberg and P. Seguin have completed the bacteriological examination of some races of bacilli isolated from eight fatal cases of emphysematous gangrene (*C.R. Soc. Biol.*, Paris, October, 1915). They have established the specific identity of these races, and have given to the bacterium the name of bacillus Œdematiens. The proofs employed by them are based on the results of tests with agglutinins prepared with the bodies of the germs and with antitoxins prepared from the toxins by injection into rabbits and sheep of the toxins. The behaviour of the microbe to the serum from a horse immunized with the toxin of the bacillus of malignant Œdema shows that this microbe belongs to a different group. The bacillus is somewhat longer than the bacillus perfringens, and is of a similar thickness. The ends are rounded. The bacillus stains well by Gram's method, though old cultures do not retain the stain. Spores are formed freely on every medium, even on those containing glucose. In cultures, the spores rapidly become free, but in sections from the tissues of man or inoculated animals, the spores are subterminal, giving the appearance of a rack-*et*. The spores resist destruction by boiling for thirty minutes. The bacillus possesses a large number of flagellæ, at least twenty. It appears usually immobile, though its mobility can be demonstrated under strict anaerobic conditions. The organisms can be cultivated only with difficulty, and under strict anaerobic conditions. The only medium on which it grows freely is freshly prepared bouillon, in which it forms gas and acid. It fails to liquefy gelatine. It causes fermentation and evolution of gas in media containing galactose, maltose, glucose and dultcite. It has little action on media containing sucrose, lævulose, lactose, inulin and mannite. Litmus milk is turned red in 24 hours, with abundant formation of gas. A clot is formed about the fifth day, which breaks up into fine flakes. The bacillus possesses great virulence, killing all animals used in the laboratory in five to thirty hours. The characteristic signs of emphysematous gangrene are seen when the animal survives twenty-four hours or more. Cultures can always be obtained from the blood of inoculated animals. A toxin of a highly poisonous nature can be prepared from glucose broth cultures. After filtration through porcelain, one-fortieth cubic centimetre kills a guinea-pig in twelve hours. The characteristic red gelatinous Œdema is produced at the site of injection of the toxin. An antitoxin for use in com-

bating the symptoms is being prepared from the sheep. The antitoxin is readily formed. The investigators have found that one one hundred and fiftieth cubic centimetre of antitoxin neutralizes four lethal doses of the toxin.

(93) Cerebral Abscess Due to the Diplococcus Jäger-Heubner.

A. Botez has described a case of meningitis and cerebral abscess secondary to suppurative otitis media (*C.R. Soc. Biol.*, Paris, August, 1915). Twelve days after paracentesis of the tympanic membrane the patient developed rigors and cerebral symptoms. During three days the patient had continued his duties. He showed inequality of the pupils, but neither photophobia nor Kernig's sign. Cultures from the blood showed the presence of a diplococcus, staining by Gram's method, which grew on agar at 37° C., but not on gelatine at 26° C. The bacillus fermented milk after ten days. It caused fermentation on media containing glucose, maltose, sucrose and lævulose, but not on those containing mannite and inulin. Lumbar puncture yielded a clear fluid, containing numerous polymorphic leucocytes and intra- and extra-cellular diplococci. Cultures from the pharynx gave pure culture of a diplococcus, decolorizing with Gram's method, growing at 37° C. on ordinary agar, liquefying gelatine, fermenting milk in 24 hours, and fermenting maltose and mannite, but not inulin and lævulose. It was identified as a diplococcus flavus of type III. Both organisms killed mice from septicæmia in 72 hours. The patient died on the ninth day in hospital. Autopsy revealed an intense purulent meningitis and a cerebral abscess in the right temporal region. Sections of the brain showed a Gram-positive diplococcus scattered through the tissues. The diplococcus is regarded as the organism of Jäger-Heubner, which has been isolated in cases of epidemic cerebro-spinal fever, but which has not been noted previously as the causal agent of cerebral abscess or meningitis.

(94) Trichon Larvæ in Cerebro-Spinal Fluid.

L. Bloch (*Journ. Amer. Med. Association*, December, 1915) relates the results of his examination of a case of trichinosis. The patient was a man, aged 19 years, who was admitted to hospital with pains in the arms and legs. The pain was so severe that the arms and legs could not be straightened. Fever, with drenching sweats, had been present for a week. A blood examination showed 13,000 leucocytes, of which 8% were eosinophile, and 77% polymorphic, 4,200,000 erythrocytes and 83% hæmoglobin. The temperature varied up to 101.4° F. Blood cultures were negative. Twenty cubic centimetres of spinal fluid were removed. The tests of Nonne and Noguchi were positive. A dozen actively motile trichina larvæ were found. A week after admission the administration of calomel caused the evacuation of great numbers of

trichina larvæ in the stools. The patient steadily recovered. Some weeks later blood counts revealed 37% eosinophile leucocytes. The most remarkable facts are the absence of symptoms referable to the brain or spinal cord and the high eosinophilia during convalescence.

(95) A New Polychrome Stain.

F. A. McJunkin gives some useful directions for the preparation of polychrome specimens of methylene blue (*Journ. Amer. Med. Association*, December, 1915). He adds 1 gm. methylene blue, B.X., and 50 c.cm. glycerine to 50 c.cm. decinormal sodium carbonate contained in a 500 c.cm. beaker. The mixture is placed in a water bath and stirred rapidly with a mechanical stirrer while it is heated to 88° C. At the end of 40 minutes, 20 c.cm. distilled water are added, and the heating continued for another fifty minutes. The dye is then poured while warm into a 100 c.cm. graduated cylinder. Five c.cm. water are placed in the beaker to wash it out, and are added to the cylinder. Sufficient methyl alcohol to raise the content of the graduated cylinder to 100 c.cm. is placed in a bottle to which is added 0.75 gm. methylene blue and 0.25 gm. eosin (yellowish water soluble). When these dyes have dissolved the solution of polychrome blue is added. This solution keeps well and stains protozoa and bacteria well. As a stain for blood, 50 c.cm. polychrome stain are mixed with 250 c.cm. methyl alcohol acidified with 2 c.cm. semi-normal hydrochloric acid and containing 0.34 gm. eosin in solution.

(96) Differentiation of the Typhoid-Colon Group with Methyl-Violet.

A. Botez (*C.R. Soc. Biol.*, Paris, August, 1915) has devised a simple means of identifying the microbes of the typhoid-colon series. He adds one part in 1,000 of methyl violet, 5B, to broth. On inoculation of the medium, he finds that the typhoid bacillus does not decolorize the violet in fifteen days. The paratyphoid bacillus A partially decolorizes the medium so that it becomes pale violet. The paratyphoid bacillus B and the bacillus coli communis completely decolorize the medium in forty-eight hours. In consequence, the medium becomes yellow in colour. The same results are seen on agar media. The author is continuing his investigation to discuss the nature of the reduction.

(97) Muco-membraneous Brochorrhœa.

Th. Mironesco has described the microscopic characters of the membranes from two cases of this rare disease, which is usually regarded as a variety of fibrinous bronchitis (*C.R. Soc. Biol.*, Paris, August, 1915). He has seen two cases within two years. In the first case the condition lasted for 18 days, and in the second case for eight days. The condition is not accompanied by acute symptoms. Both patients were women. The membranes

have resembled the walls of hydatid cysts. Histological examination has shown that the membranes are stratified, finely granular, composed entirely of mucus and free from cellular elements. The mucus reacts in a characteristic manner with thionin. The membranes dissolve completely in lime water. As cellular elements are entirely absent, the author suggests that this condition is not inflammatory, and should not be described as a variety of bronchitis, but as a type of bronchorrhoea. He has examined the blood of his patients for ferments of the mucinase group, and he has established certain differences in respect to these ferments between the blood from his patients and blood from healthy persons. In both patients only one attack was experienced.

PÆDIATRICS.

(98) *Ætiology of Tetany.*

Assuming that there is a general "salt disturbance" in cases of tetany, Brown and Fletcher (*Amer. Journ. of Dis. of Children*, November, 1915) made observations on 30 cases of the disease, and on 100 infants who were thought to be free from it. They attempted to determine whether, by changing the various food elements, tetany could be produced with any certainty, and to note, if possible, any change in the inorganic salts during the onset, height and disappearance of the condition, and what substances were responsible for the ultimate healing. They give the following "summary and conclusions" from their findings. The production of tetany is due probably to the storing up of fluid in the tissues of the organism, which fluid is combined with sodium and potassium salts. This storing up is brought about by the feeding of improper foods, composed of high carbohydrates, which have been subjected to heat. The association of fluid retention and constipation in infants is not infrequently seen, and the former seems to depend entirely on the gastro-intestinal disturbances, since it is controlled by dietetic changes, and disappears with improved digestion. With diarrhoea, together with the severe water loss from the bowel, there is an increase of the output of sodium and potassium to 8 to 10 times the normal. One method of lowering the sodium and potassium intake is to remove the whey from the food and retain the calcium-bearing curd. The sodium chloride estimation in the urine is an index of the general nervous irritability, which lessens or disappears with improved renal function. The production of diuresis is a much safer method of elimination than that of purgation. Undoubtedly, calcium estimations alone do not account for the nerve irritability in tetany, but would seem to support the hypothesis that tetany results from a disturbance of the concentration equilibrium of the salts, and that these salt changes are probably associated with gastro-intestinal dis-

turbances and decreased flow of urine. As improvement in the function of the two systems occurs, restoration of the normal salt equilibrium ensues. Tetany may be produced by high percentage carbohydrate food, which have been subjected to heat up to or over boiling point. The seasonal incidence of tetany is probably due to a disturbance of the gastro-intestinal tract (constipation), decreased internal combustion, and the comparative safety from diarrhoea in feeding high percentage carbohydrate foods during the cold months. A diagnosis of tetany is suggestive where there is manifest kidney inactivity in constipated infants fed on heated foods of high carbohydrate content. As a result of this improper feeding, a disturbance of the body salts is produced. At the height of the disease there is an almost complete retention of sodium and potassium, and a great loss of magnesium. As improvement ensues there is an increased flow of urine, accompanied by relief of the constipation, during which the stored-up sodium and potassium are rapidly lost. This salt disturbance may be remedied firstly by purgation, secondly by diuresis, thirdly by the administration of cod-liver oil and phosphorus to build up the calcium content, and fourthly by a change of diet. The severe spasms or convulsions may be temporarily relieved by subcutaneous injections of a solution of magnesium sulphate.

(99) *Transmission of Tuberculosis in Childhood.*

Park (*Arch. of Pediatrics*, July, 1915) gives a short account of the ways in which tubercle bacilli are conveyed to children. (1) Intrauterine infection occurs occasionally, but accounts for a very small proportion of the cases of tuberculosis in children. In the majority of the cases reported the mother was suffering from extensive miliary tuberculosis. There is no evidence that intrauterine infection ever proceeds from the father. (2) After birth the human infant, though possessing as a rule considerable insusceptibility to tuberculosis, is endangered by bacilli both from human sources and from diseased cattle. Cows only contaminate the milk extensively when they have disease of the udder. With extensive disease many of millions of bacilli may pass in each cubic centimetre of milk, and one or two seriously affected cows may thus cause the whole of the mixed milk of a herd to be dangerously infected. Even with an apparently normal udder tubercle bacilli may appear in the milk; probably as the result of contamination with infected manure. Careful and thorough pasteurization of infected milk destroys the bacilli, or at most leaves too few to infect animals. Butter is known to contain bacilli if made from infected milk, and though the organisms usually die out within a few weeks, they may survive as long as five months. It is doubtful if meat ever transmits tuberculosis to human

beings, since the bacilli are usually destroyed in the cooking. As regards human sources of infection, although it has been proved that bovine bacilli infect infants, and to some extent older children, yet the evidence is equally clear that the majority of infections are human in origin. In the case of infants and young children the greatest danger lies in being attended by a tuberculous mother or nurse, the bacilli being received from the hands, lips, or other parts of the person, and swallowed. This results in an infection of the tissues of the throat or intestines. The bacilli may also be inhaled in the fine spray from the coughing, sneezing, or loud speaking of the tuberculous attendant. These organisms may be swallowed or pass through the larynx, and cause direct infection of the lung tissues. Entire removal of the child from contact with tuberculous persons is the only safe method of avoiding this direct human contamination, though the danger can be greatly lessened if proper precautions are taken to prevent escape of the bacilli.

(100) *The Diagnosis of Scurvy.*

Alan Brown (*Arch. of Pediatrics*, October, 1915) draws attention to four important points in the diagnosis of scurvy, viz., (1) fever, (2) leucocytosis, (3) great radiability of recently extravasated blood, (4) the "white line." Fever may be high (105°), and is probably due to an attempt on the part of the organism to deal with the blood extravasated. As shown by the radiograms, sub-periosteal hæmorrhage can rarely be detected during the first week or two. However slight it is, it takes weeks and even months to organize completely. The "white line" appears on the X-ray plate at the junction of epiphysis and diaphysis and is due to increased density in that position. It persists long after clinical cure, and precedes the occurrence of hæmorrhages. The author also refers to the chemistry of scurvy and also to the chemistry of rickets, tetany and beri-beri, diseases which show analogies to scurvy. This group of diseases depends apparently upon the balance of the various salts of the body, especially sodium and potassium on the one hand and calcium and magnesium on the other. Phosphorus may be grouped with the two latter. Sodium and potassium act as excitants, calcium and magnesium as sedatives of the nervous system, and the author, in collaboration with Almond Fletcher, has shown that increased excretion of sodium and potassium in tetany is followed by cessation of the tetanoid symptoms. This retention of sodium and potassium salts occurs in children fed on a high percentage of carbohydrate and in cases of nutritional oedema. The addition of fruit juice to the diet has been shown to diminish the loss of the various food constituents through the faeces, and the vitamins present in fresh foods probably control the proper metabolism of the body salts.

British Medical Association News.

MEDICO-POLITICAL.

A meeting of the Council of the Victorian Branch was held at the Medical Society Hall, East Melbourne, February 23, 1916, Dr. A. V. M. Anderson, the President, in the chair.

It was decided to issue a circular to members of the Branch, calling attention to a circular issued shortly after the outbreak of war, with regard to the protection of absentees' practices. It was recognized that as members were returning, the time was opportune for recalling the principles of conduct set out therein, and requesting members to give liberal effect to the quasi-undertaking.

The following were elected members of the Branch:—

Richard Arthur Vanly, Werribee.
Edgar Alfred Barrett, Toora.
Samuel Leslie Germon, Caulfield.
John Rhys Williams, East St. Kilda.
John Shaw Mackay, East Melbourne.
Geoffrey Penton, Hawksburn.
Noel Tracey Bull, Melbourne Hospital.
Henry Fitzgerald Maudsley, Royal Park.
Kenneth Arthur McLean, Melbourne Hospital.
Harry Wyatt Wunderly, Melbourne Hospital.
Maurice Matenson, Bendigo Hospital.
Alfred Miller Ford, East St. Kilda.
Thomas Simpson Campbell, Rochester.
Thomas Glen Oliphant, Bendigo.

It was decided to send a letter of sympathy to the widow of the late Dr. Kenneth Maxwell, of Castlemaine.

The resignation of Dr. David Kennedy, who has returned to England, was accepted with regret.

Acting on the suggestion of the South Australian Branch, Dr. W. T. Hayward was nominated as representative on the Council of the British Medical Association in England, in succession to Mr. G. A. Syme.

CONVALESCENT DEPOTS FOR AUSTRALIANS IN ENGLAND.

A correspondent who had unusual facilities for judging the efficiency of the Australian Army Medical arrangements in England, has written indicating the more salient defects in the organization, as they appeared to him. His views embrace one side of the matter; the other side is undoubtedly held just as strongly by others. We have no means of judging between these views at present, and in the belief that open criticism is helpful and likely to lead to the remedying of defects, we publish certain portions of the letter without comment.

The writer starts his narrative by explaining that when some of the Australian Army Medical Corps Officers arrived in London, they received instructions from Lieutenant-Colonel Froude Flashman to call at the War Office and then at the High Commissioner's Office. Lieutenant-Colonel Perrin Norris received them at the High Commissioner's office in a courteous manner. It appears that Lieutenant-Colonel Norris had been delegated by Sir George Reid to carry out much of the medical military work of the Department. Since Sir George was the representative of the Minister for Defence of the Commonwealth in Great Britain, Lieutenant-Colonel Norris was authorized to act as the representative in medical matters connected with the Army. It will be remembered that he had previously been appointed Medical Adviser for the Commonwealth in London.

Lieutenant-Colonel Froude Flashman received instructions at the time of which our correspondent was writing to take charge of the Convalescent Depôts in England. The only convalescent depôt in existence was one which had been established in the grounds of an estate owned by Mr. Bilyard Leake, at Harefield. The name of this depôt it is true, had been changed to that of No. 1 Australian Auxiliary Hospital, but from the description of the place and work undertaken, it seems that it was in effect a convalescent depôt. It is doubtful whether the authorities in Australia were aware of the fact that when Lieutenant-Colonel Flash-

man was appointed to take charge of the convalescent depôts in England, only one existed, and this one had been rechristened an Auxiliary Hospital. In view of the actual state of affairs, Lieutenant-Colonel Norris gave Lieutenant-Colonel Flashman instructions to act as Commandant of the Australian Auxiliary Hospitals in England.

Duties had to be found for the other medical officers who had arrived at this time. Many of them felt that they were not really wanted. There were no positions for them to fill, and when the work was found for them, it was not enough to keep them reasonably occupied. Some of these officers were employed at the Harefield Hospital or Convalescent Depôt. There were nearly 500 beds in this institution, and in addition, three or four small hospitals for officers were also placed under Flashman's charge. These small places were the homes of wealthy folk, who wished to do something for Australia's sons. Wounded officers were taken in and nursed, fed and cared for at the expense of their hosts. It is said that at this time, Lieutenant-Colonel Norris retained for himself the distribution of the medical staff, the control of the buildings, and the care of the Australian soldiers in England. There were approximately 8000 Australian soldiers in England when Lieutenant-Colonel Flashman became Commandant of the Auxiliary Hospitals. Subsequently the men arrived at a faster rate than they left, until the men at Harefield, those on furlough, those at the base camp at Weymouth, and those in the various British hospitals numbered about 12,000. The soldiers on furlough, or elsewhere, had to report at the Australian Military Headquarters, and from there they were sent to Harefield, or to the base camp. The continuous stream of men arriving in England contained an ever-increasing number of those who reported sick, and the sick parade as a consequence became quite a big thing. The facilities for examining the men were inadequate, and our correspondent asserts that the space at the disposal of the medical officer was so limited that some of the patients had to be examined in the urinals. Flashman was informed of this state of affairs, and promptly reported it to Sir George Reid. Sir George was justly indignant at such a procedure, and placed the sick parade under Lieutenant-Colonel Flashman's control. Sir George Reid was impressed with the necessity of giving Flashman full authority over the staff of the institution of which he was in charge, and at a later date he was given complete control over all the Australian Medical Officers in England. He utilized his extended power with firmness, with energy, with surprising energy, and with wisdom. He set about the organization of the sick parade. He secured proper accommodation for the men coming to headquarters for various purposes. A proper medical staff was held in readiness to look after the sick. In short, a complete out-patient department was organized, and each patient was dealt with in a suitable fashion. He also arranged for the boarding of the invalided Australian officers and men. It became apparent to him that if he aimed at the provision of proper comfort for the Australian soldiers, after their discharge from the British Hospitals, he would have to secure further accommodation. He found a disused camp at Abbeywood, some 10 miles from London, where there were suitable huts, kitchen, offices and mess rooms, etc. The War Office agreed that he should take over this place for the purpose of accommodating convalescent Australians. He was no idle man these days, and worked till late at night to get things going in a style that Australia would not be ashamed of. He received most able assistance from other officers, especially from Captain Thwaites.

About this time, the No. 10 Australian General Hospital staff arrived in England. It had been arranged that this unit was to work at Wandsworth, where there were usually about 500 Australian soldiers. But when they arrived Wandsworth was fully staffed, and it was quite obvious that the unit was not wanted. Moreover, it is said that the Director-General of Medical Services, Sir Alfred Keogh, was not aware of their arrival. Everyone seemed displeased at finding this No. 10 Hospital in England, and as it was not wanted, some means had to be devised to dispose of it. Some of the members were sent to Harefield, some were detailed to the No. 3 British General Military Hospital at Wandsworth, and some were sent on holiday. It was just dispersed. Our correspondent discusses at some length

the error of having allowed this unit to go to England and analyses the causes of the bad organization.

Shortly after this, the Acting Director-General of Medical Services arrived in England on his visit of inspection. A mistake was then made. Instead of being taken over Harefield by the man in charge, the representative of the medical affairs of the Commonwealth conducted him around the institution. It would appear as if Surgeon-General (then Colonel) Fetherston had been persuaded by others that the work undertaken by Flashman was not advantageous. At all events the whole system was altered. Lieutenant-Colonel Flashman was removed from Harefield and appointed Consulting Physician at the No. 3 General Hospital at Wandsworth, and Abbeywood was closed. A further change was made by the appointment of three Acting Director-Generals of Medical Services, Lieutenant-Colonel Norris, Lieutenant-Colonel Giblin, and Lieutenant-Colonel G. A. Marshall, while General Williams was re-appointed Deputy Director-General of Medical Services.

The result of arresting the work organized and put into execution by Flashman was that there arose a great congestion of men returning from furlough and sick men. Harefield was full; there was no room at Weymouth. Consequently the only thing to be done was to send these men back on furlough. This state of affairs did not last long, for an order was issued by General Williams to find accommodation for 2,500 convalescents.

Harefield is $2\frac{1}{2}$ miles from Denham Station, $3\frac{1}{2}$ miles from Northwood, and about 15 miles from London. The residence is a very old-fashioned house. The vines, which clothe the exterior, make it look very beautiful, especially in the autumn, when the leaves have such glorious colouring. The house is used by the Medical Officers, for the officers' mess-room, for sitting-rooms and for bedrooms. On the upper storey some of the nurses are accommodated. About May last, after the erection of some five or six huts, each built to accommodate some 20 convalescent patients, together with kitchen, latrines and bathrooms, the place was opened as a convalescent depot to receive patients discharged from the various British Hospitals. As time went on more and more huts were built. There are now 27 huts and larger ones are in course of erection, each to hold 32 patients. The smaller huts are heated by a stove placed in the centre. Each hut is a plain single room. Between the adjacent huts there has been built a little room, known as the "dressing-room." This is supplied with water and a gas ring for heating. There is no water supply in the wards and no gas supply. The lighting is by electricity. There are no urinals, no water closets, no bathrooms attached to the wards or huts. No ward or hut or dining-room had a sink in it for six months after Harefield had been taken into use, except in the case of three wards used for surgical cases.

Both surgical and medical cases are received, and a not inconsiderable amount of useful surgical work has been done. The difficulties the nurses have to contend with in attending to cases of dysentery and diarrhoea are considerable. All the excretions have to be carried from some of the more recently erected huts to the latrines situated 20 to 50 yards away. Male orderlies are on duty to assist the nurses, one for each ward. The slop water had to be thrown out, because there were no sinks. Later on buckets on wheels were provided for the purpose of disposal of this refuse. The condition of the patient was not a happy one on a cold night, when he was obliged to go to the latrine far removed from the ward to empty his bladder or rectum. Many of these defects have not been remedied. Had Harefield been kept entirely for convalescent soldiers the case would have been different; but it was allowed to be used partly as a hospital. During the first seven months of its existence no less than four officers in command had charge of it. How can efficiency be gained when the head is continually being changed . . . The food is not as good as it should be; at times it was bad. It is not served up well. Many of the men get their meals, or some of their meals, in the neighbouring village. It is said that the men preferred being in British hospitals, because they thought that they got better treatment and better food.

Another objection to Harefield as a general hospital was that its distance from the train necessitated the transport of patients by ambulance. Badly wounded or sick men

should not be disembarked, say at Plymouth, put into a train to London, transferred to another to Denham or Northwood, and then transported by motor ambulance to Harefield. A more convenient site could have been found in the south of England, even for a convalescent depot. Harefield is very cold; the pond is often frozen over with ice thick enough to bear men walking on it. The writer continues by stating that he is sorry to tell such a tale. He suggests that it does not read well or reflect credit on the work of the Australian Army Medical Corps. If the combatant side is not better managed, he would be profoundly sorry.

In conclusion he says of the nursing sisters at Harefield, that their work is splendid. Their devotion to the men is beyond praise. Many of them, nay most of them, buy out of their own pockets tea, biscuits, cake, etc., for their patients. Some of them supplement the hospital diet with food, etc., which they have purchased specially. Surely this should not be necessary.

Public Health.

THE HEALTH OF NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending February 26, 1916:—

	Metropolitan Combined Districts.		Hunter River Combined Districts.		Remainder of State.		Total.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Enteric Fever ..	40	1	3	—	36	3	79	4
Scarlet Fever ..	78	—	7	—	86	—	171	—
Diphtheria ..	104	—	5	—	64	—	173	—
C'bro-Sp'l Menin.	3	—	—	—	—	—	3	—
Inf'tile Paralysis	16	—	—	—	1	—	17	—
Pul. Tuberculosis	34	3	1	3	—	—	35	6
Malaria ..	3	—	—	—	1	—	4	—

THE HEALTH OF VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending February 27, 1916:—

	Metropolitan. Cs. Dths.		Rest of State. Cs. Dths.		Total. Cs. Dths.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Diphtheria ..	62	3	30	1	92	4
Scarlatina ..	11	0	10	0	21	0
Enteric Fever ..	4	0	29	5	33	5
Pulmonary Tuberculosis	19	8	12	4	31	12

The following is the return of epidemic cerebro-spinal meningitis cases notified to the Board during the week ending February 27, 1916:—

	Metropolitan Area. Cases.		Rural Districts. Cases.		Totals. Cases.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Civil ..	1	—	1	—	2	—

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending February 19, 1916:—

	Enteric Fever. Cases.		Diph- theria. Cases.		Pulmonary Tuber- culosis. Cases.		Anterior Polio- myelitis. Cases.		Ophthalmia Cases.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Claremont ..	—	—	2	—	—	—	—	—	—	—
Subiaco ..	1	—	1	—	—	—	—	—	—	—
Perth ..	5	—	1	—	2	—	1	—	1	—
Maylands ..	1	—	2	—	—	—	—	—	—	—
Victoria Park ..	—	—	—	—	1	—	—	—	—	—
Boulder ..	—	—	2	—	—	—	—	—	—	—
Osborne Park ..	—	—	1	—	—	—	—	—	—	—
Greenbushes ..	1	—	—	—	—	—	—	—	—	—
Linden, near Morgan's ..	—	—	—	—	1	—	—	—	—	—
Yarloop ..	—	—	—	—	1	—	—	—	—	—
Totals ..	8	—	9	—	5	—	1	—	1	—

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending February 26, 1916:—

Disease.	No. of Cases.
Diphtheria	39
Enteric Fever	62
Scarlatina	6
Pulmonary Tuberculosis	13
Cerebro-Spinal Meningitis	2
Erysipelas	1
Puerperal Fever	1
Total	124

THE HEALTH OF BROKEN HILL.

The Medical Officer of Health of Broken Hill has issued the following report for the year ending December 31, 1915.

Population.—The estimate of the population of Broken Hill at the beginning of the year was 31,500. The excess of departures over arrivals by train was 3,200; estimate of excess of departures by other means over arrivals is roughly 500. The natural increase, *viz.*, births over deaths, was 597, leaving an estimate of the population of the municipality at the close of 1915 to be 27,400. The mean average for the year would be approximately 29,500, which is the figure used in the report for calculating averages per head of population.

Marriages were 298, against 350, in 1915, being 10 per thousand of population.

Births.—During the year there were 1,027 births (542 males and 485 females); in 1914 the number was 1,246, and in 1913 1,395, the ratio per 1,000 of population being 34.81 in 1915, 37.76 in 1914, and 39.81 in 1913.

Deaths were 430 in 1915 (240 males and 190 females); in 1914 the number was 520, and in 1913 651. The death-rate for the three respective years per thousand of the population was 14.58 in 1915, 15.75 in 1914, and 15.6 in 1913. The average rate for the five preceding years was 15.31.

Infantile Mortality.—The deaths of children under twelve months of age were 102, being a rate of 99.31 per thousand births, against a rate in the previous year of 122, and in 1913 or 143.38; the principal causes of deaths amongst infants under a year old were gastro-intestinal 49, respiratory diseases 6, prematurity 23, and congenital diseases 11.

Notifiable Infectious Diseases.—There were notified during the year: Typhoid fever 126, diphtheria 442, and scarlatina 99. The figures for preceding years for typhoid and diphtheria were: 1914, typhoid fever 417, diphtheria 573; 1913, typhoid fever 210, diphtheria 641; 1912, typhoid fever 157, diphtheria 56; 1911, typhoid fever 191, diphtheria 238; 1910, typhoid fever 212, diphtheria 316.

In 1914 there were notified 46 cases of scarlatina.

The number of deaths from notifiable infectious diseases were: Typhoid fever 8, diphtheria 18, scarlatina nil; in 1914 the deaths were: Typhoid fever 45 and diphtheria 22.

It will be noticed that there was a decided diminution in the number of cases of typhoid fever in the district, and also in the mortality for the same disease. It must be remembered that in addition to giving improved sanitation and inspection credit for the same, and also an improved water supply, the principal decrease in our population was of young men of the most susceptible type and age, and a great lessening of the crowding of the boarding houses in our most insanitary portion of the town.

Deaths from Other Diseases.—In addition to deaths from infectious and infantile diseases, the principal causes of death were as follows, the figures in brackets being the average for the preceding five years: Hepatic diseases, 6 (5.4); tubercular diseases, 32 (29.0); cancer, 18 (16.18); cardiac diseases, 30 (22.80); pneumonia, 25 (48.59); other respiratory, 6 (16.25); nephritis, 30 (26.60); gastro-intestinal, 22 (37.00); accidents, 24 (35.40); senility, 22 (13.35); cerebral, 7 (24.00); puerperal, 12 (8.5); suicide, 6; homicide, 6.

Of the deaths from tubercular diseases, 30 were due to pulmonary disease (phthisis), 19 males and 11 females.

INFECTIOUS DISEASES.

The official report of the Federal Quarantine Bureau on February 15, 1916, deals with the distribution of plague, cholera, and small-pox in various parts of the world.

Plague.

During the period from November 28 to December 18, 1915, 16,248 cases of plague were notified in India. In the same period 12,186 persons died of this disease.

From December 10 to December 30, 1915, there were 15 cases in Egypt and 10 deaths. In Java, from December 3 to the end of the year, 700 cases were notified, and 697 deaths took place.

In Ceylon, 25 cases were reported between the dates of December 5 and December 25, 1915. In the Orange Free State there were 11 cases.

From the Straits Settlements the report of one case occurring at Penang on January 20, 1916, has been received.

The bill of health of the *s.s. Sonoma* from Honolulu contains a report that the last case of rat plague occurred at Kukilau on January 9, 1916, and that the last case of human plague occurred at Parrhau on December 15, 1915.

There were no fresh cases in the neighbourhood of Tetuan since October 16, 1915. One fatal case occurred at Bangkok, Siam, during the week ending November 20, 1915. The last case in the Philippine Islands was reported on September 12, 1914, and no further cases have been reported in New Caledonia. No reports have been received from Hong Kong or Mauritius.

Cholera.

There were four cases of cholera notified in the Philippine Islands between December 26, 1915, and January 14, 1916. Two deaths occurred. The last case of cholera reported in the Straits Settlements was on October 9, 1915.

Small-pox.

In the Dutch East Indies, 29 additional cases of small-pox and 6 deaths have been notified. There were 6 cases of varioloid during the period, December 11, 1915, and January 14, 1916, in the Philippine Islands. Three cases of small-pox was recorded in the Straits Settlements from December 14, 1915, to January 3, 1916.

In the bill of health issued to the *s.s. Changsha* at Hong Kong, the report of one case of small-pox is included.

Vital Statistics.

SYDNEY AND NEWCASTLE.

The report of the Government Statistician on the vital statistics of Sydney for the month of January, 1916, has been published in the New South Wales Government *Gazette* of February 11, 1916.

The number of births registered during the month was 1,778. Calculated at an annual rate per 1,000 of population, this figure represents 27.96. The average for January in the preceding five years was equivalent to an annual rate of 28.17. While the general birth-rate was slightly lower than the average, the illegitimate birth-rate was very markedly so. There were 100 illegitimate births, which corresponds to an annual illegitimate birth-rate of 1.57, as compared with 2.2 per 1,000 of population, which is the average for the previous five years.

The number of deaths was slightly higher than the average for January. During the month, 385 males and 310 females died; the equivalent annual death-rate was 10.93. Of the 695 persons who died during the month, 157 were under one year of age, 59 were between one and four, and 136 were 65 and over. The infantile mortality was 38 per 1,000 births, whereas the average of the past five Januaries was 78.

The most common cause of death was diarrhoea and enteritis. There were 100 deaths from this condition. This number has not been reached in January during the past 10 years, whereas it was over 90 on three occasions, and over 80 on four. The smallest number of deaths from diarrhoea and enteritis in the month of January was 58, in the year 1915. There were 31 deaths from pneumonia, and 10 from broncho-pneumonia. The pneumonia mortality was also considerably higher than in January of the past 10 years. Enteric fever was fatal 18 times. In January, 1908, there were 19 deaths from this cause; in January of other years the number has varied between 4 and 16. There were 34

deaths due to tuberculosis. In 23 instances the disease was pulmonary. The number of deaths from pulmonary tuberculosis was considerably lower than the average for the same month. There were 12 deaths from diphtheria, 6 from morbilli, 6 from scarlatina, 4 from pertussis, 2 from cholera nostras, 2 from tetanus, 4 from syphilis, 8 from cerebro-spinal meningitis, 6 from simple meningitis, and 3 from acute endocarditis. Eight deaths were registered as being due to chronic bronchitis, and two to acute bronchitis.

Diseases of the cardio-vascular system resulted in death on 109 occasions. In 61 cases the cause of death was said to be organic diseases of the heart, and in 28 cerebral hæmorrhage. There were 54 deaths due to cancer, 32 to Bright's disease, and 3 to acute nephritis.

Of the deaths associated with the puerperal conditions, 10 were due to puerperal septicæmia, 3 to puerperal albuminuria, and one each to phlegmasia alba dolens, puerperal hæmorrhage and accidents of pregnancy.

It appears that 68 cases of enteric fever, 285 of scarlatina, 289 of diphtheria, 111 of pulmonary tuberculosis, 34 of anterior poliomyelitis, 9 of malaria and 3 of cerebro-spinal meningitis were notified to the Health Authority during the month.

The returns for the Newcastle District have been published separately in the New South Wales Government Gazette, of February 18, 1916.

There were 184 births, 96 being of males and 88 of females. This represents a birth-rate equivalent to an annual rate of 37.56 per 1,000 of population. It is the highest birth-rate recorded for January during the past 10 years. The rate is somewhat higher than the average for the past 13 months. Of the 184 births, 5 were illegitimate. The illegitimate birth-rate consequently works out at 1.08 per 1,000 of population.

The number of deaths recorded during the month was 83. This number has only been exceeded once during the past 12 months, and has not been exceeded in January during the past 10 years. The death-rate expressed as an annual death-rate was 16.92 per 1,000 of population. Eighteen infants under one year of age died, which is equal to an infantile mortality of 98 per 1,000 births. Thirty-three deaths occurred in public institutions.

Among the causes of death, pulmonary tuberculosis entered 3 times, enteric fever, septicæmia and simple meningitis twice, diphtheria and cerebro-spinal meningitis once, lobar pneumonia 4 times, broncho-pneumonia and chronic bronchitis twice each, and diarrhoea and enteritis 19 times. There were 10 deaths from cancer. Of the deaths due to diseases of the cardio-vascular system, 4 were due to cerebral hæmorrhage, 2 to atheroma, and the same number to aneurysm, 1 to organic disease of the heart, and 1 to embolism.

There were 18 cases of enteric fever notified to the Board of Health, 25 of diphtheria and 14 of scarlatina.

SOUTH AUSTRALIA.

The Registrar-General has published the returns of births and deaths registered in South Australia during the month of January, 1916, and compares the figures with those of the month of January in the preceding five years.

The number of births was 906, which is equivalent to an annual birth-rate of 24.6 per 1,000 of population. The figure is lower than that recorded in January, 1912, 1913, 1914 and 1915, and higher than that recorded in January, 1911.

During the month 476 persons died. The death-rate was 0.108%, or if expressed as an annual death-rate, 12.96 per 1,000 of population. The January rate in 1911 was 0.092%, in 1912 0.088%, in 1913 0.1%, in 1914 0.096%, and in 1915 0.098%. Of the 476 deaths, 131 were of infants under one year of age. The infantile mortality was 144.5 per 1,000 births.

Among the causes of deaths, diarrhoea and enteritis stands out prominently with 130 to its credit. Tuberculosis was responsible for 24 deaths, pneumonia for 19, enteric fever for 10, pertussis for 7, morbilli for 4, dysentery for 4, meningitis for 7, influenza for 2, septicæmia for 2, bronchitis for 8, and diphtheria for 1. Diseases of the heart and circulatory system killed 36 persons, and 13 others died of apoplexy.

There were 11 deaths from Bright's disease. Only two deaths from puerperal septicæmia were recorded, and 1 from puerperal hæmorrhage.

The corrected returns for the city of Adelaide are published separately. There were 84 births registered in the city, which is equivalent to an annual birth-rate of 22.04. The number of persons, exclusive of those not usually resident in the city whose death was registered during the month, was 77. This yields a death-rate of 21.12 per 1,000 of population.

Among the causes of death, diarrhoea and enteritis entered 28 times, tuberculosis 5 times, and enteric fever 3 times.

THE HEALTH OF QUEENSLAND.

The Commissioner for Public Health, Queensland, has issued his annual report for the year ending June 30, 1915.

Births and Deaths.

The claim is made that Queensland is one of the healthiest places in the world. The increase of population amounted to 22,377, the estimated mean population for 1914 being 674,932. The crude birth-rate was 29.46 as compared with 28.05 for the Commonwealth, 26.1 for New Zealand, 23.8 for England and Wales, and 19 for France. The crude death-rate was 9.97. In 1912 it was 12.4 in Canada, 13.3 in England and Wales, 14.2 in Sweden, 15.6 in the German Empire, 16.5 in Ireland, 17.5 in France, and 18.2 in Italy. The infantile mortality in the State was 63.87, which is the lowest recorded. In New South Wales it was 69.7, in Western Australia it was 68.2, in Victoria it was 78.3. In South Australia it was 76, and in Tasmania it was 71.6. The lowest figure in European countries was in Sweden in 1911, viz., 72. In England and Wales in 1912 the infantile mortality was 95, in Scotland it was 112, in Germany it was 147, in Italy 153, and in Belgium 167.

Notifiable Diseases.

The various local councils have been asked to arrange with the public hospitals in their respective areas to enter into an agreement for the reception of persons suffering from notifiable infectious diseases, the councils to pay £2 2s a week for the period when the patient is kept in bed, and £1 5s a week during convalescence, unless the cost of treatment is shown to exceed this amount. The Commissioner hopes that the arrangement will incite the local authorities to pay closer attention to public health matters.

The number of cases of enteric fever notified during the year in the Brisbane Metropolitan area was 296, and outside the metropolitan area 887. The Commissioner points out that there has been a gratifying decrease in the number of cases recorded, more especially in the metropolitan area. He attributes this in a large measure to the improved housing conditions consequent on increased prosperity. Outside the metropolis many local bodies have applied prophylactic measures. The Kargoolnah Shire Council has issued a special pamphlet, recommending persons to take advantage of the anti-typhoid vaccine, which the Department prepares and supplies free of cost. In this connexion the Commissioner points out that cesspits are now practically a thing of the past. "These abominations," he says, "formed dangerous breeding centres for flies, which are responsible for transmitting typhoid to humans."

The number of cases of diphtheria notified within the Brisbane area was 691, whereas 1,462 cases were notified outside the metropolitan area. The incidence of this disease was very high in the first week of April. The majority of the patients were children. There were 553 more cases in 1915 than in 1914. Severe outbreaks occurred at Nanango, Harrisville, Many Peaks, and Mackay. Comment is made on the limited hospital accommodation in the country districts where epidemics have occurred. Under these circumstances tents have been used as temporary expedients. The Commissioner points out that parents frequently treat sore throats associated with feverishness lightly, on the assumption that these symptoms are due to cold. This results in the late recognition of many cases of diphtheria, and a consequent spread of the disease.

There has been a decrease in the number of notifications of pulmonary tuberculosis, but the Commissioner fears that

the decrease may be due to the disinclination of medical practitioners to notify cases out of consideration for the patient. In the metropolitan area 222 cases were reported as against 257 in the preceding year. In the extra-metropolitan area 180 cases were reported. The Commissioner advocates more stringent measures to combat the disease. Attention should be paid to the infected individual, and to those in contact with him, and in determining whether home treatment on hygienic lines or sanatorium treatment should be selected. The home conditions, the social conditions, and the environment should be carefully considered. He calls attention to the excellent work that had been carried out at the Sanatoria at Dalby and Diamantina. He suggested the establishment of a central dépôt, through which all patients should pass on their way to and from the sanatoria. The Departmental Staff Nurse devotes a part of her energy to the discharged patients in order to prevent them from relapsing into their former habits. He quotes the figures published in the official year book, showing the death-rates from tuberculosis in the various States. In Queensland in the year 1913 there were 60 deaths per 100,000 of population, in Western Australia and Tasmania there were 74, in New South Wales there were 78, in Victoria there were 87, and in South Australia there were 90. Deaths from tuberculosis formed 5.73% of the total number of deaths in Queensland, 6.8% in Tasmania, 7.19% in New South Wales, 7.86% in Victoria, 7.91% in Western Australia, and 8.29% in South Australia.

Varicella appears to have been more frequent than in the preceding year. In all 611 cases were notified. The disease is comparatively unimportant. Notification has been adopted largely because of the similarity of this disease and variola, which was prevalent in New South Wales.

An outbreak of acute anterior poliomyelitis occurred in Brisbane within the month of October, November and December, 1914. This epidemic was dealt with by Dr. J. E. Thomson, the Chief Health Officer, in the absence of the Commissioner. There were 207 cases, and 29 patients died. In 9 cases the diagnosis was doubtful, and the disease was probably rachitis. One of the patients was under 6 months of age, and two were over 4 years. In 12 cases the patients were between 1 and 2 years of age. In no instance was more than one member of a family affected, although the patients were in many instances members of large families. The illness began in nearly every case by rise of temperature, sickness, malaise, twitching, and convulsions, headache and drowsiness and paralysis developed in the course of one to four days. The right leg was affected 8 times, the left leg 6 times, the right arm 5 times, the right arm and leg once, the left arm and leg once, and both legs once. In discussing the etiology of the disease, the Health Officer remarks on the frequency in which acute anterior poliomyelitis has been observed to follow scarlatina, morbilli, influenza, pneumonia, and diphtheria. In the period before the outbreak and at this time, both influenza and diphtheria were prevalent in Brisbane. He calls attention to the seasonal incidence of the disease. He recites the measures taken to prevent a further spread of the disease.

During the year 1,414 notifications of venereal disease were received in the metropolitan area. This number represents an increase of 324 notifications on the preceding year.

The Medical Officer for Enthetic Diseases issues a special report. He points out that there were 396 new gonorrhoeal infections in males and 2 in females, 95 new syphilitic infections in males, and 11 in females, and 22 new combined infections in males. The Commissioner attributes the increase in the number of cases to the large collection of men at military camps. He is satisfied that the infection was derived in many instances from outside centres. The Commissioner is of opinion that the satisfactory working of the infective diseases regulations has been discounted to a great measure by the fact that it has been impossible to obtain absolute evidence, which would justify the authority in dealing with particular prostitutes. Medical practitioners seldom give sufficient information in the notifications as to the source of infection, as the patients invariably decline to assist them. Section 132c of the venereal clauses of the Health Act requires two medical practitioners to certify that a person is suffering from venereal disease before a

police magistrate may issue an order for his detention for the purposes of investigation. Free treatment is accorded by the Department, and this has been made use of to a considerable extent. A special enthetic ward has been erected. Formerly the patients were treated by the members of the staff of the Brisbane General Hospital. The arrangement, however, was not satisfactory. The ward is now under the charge of the medical officer, Dr. H. S. Walsh. It is stated that owing to the overcrowding of the Brisbane Hospital through the admission of patients from the expeditionary camp, the enthetic disease ward has been temporarily requisitioned by Government authority to meet the contingency. During the year 42 males and 17 females were treated with salvarsan. The supply of this drug was almost exhausted, and the remainder of the stock was being reserved for severe cases.

Food Inspection.

A close supervision has been kept of traders, including bakers, milk vendors, hotelkeepers, smallgoods shopkeepers, etc. The Government analyst has dealt with a number of samples of food stuffs, including milk, and has detected a considerable quantity of adulteration. The annual milk supply of the metropolitan area is estimated at 2,000,000 gallons. Of 609 samples 96 failed; on an average 17.4% of water had been added. Calculating on this basis, it would seem that 226,000 gallons of milk had been adulterated, and that the water used for this adulteration cost the community approximately £4,000. The fines inflicted in the 96 prosecutions, together with the costs, amounted only to £389. It is pointed out that it is a profitable undertaking to adulterate milk in Brisbane. The Commissioner states that when the regulations are enforced this practice may be controlled by the licensing of milk vendors and by the prohibition of carrying water in milk carts. The report of the Chief Food Inspector is a document of some length, and contains much important information. He gives an account of the general work of the Department, and of the tours of inspection undertaken. In a series of excellent photographs sanitary and insanitary conditions obtaining in factories and similar institutions are depicted. A few old aerated water and cordial factories are still in existence. It is hoped that these will disappear in a few years. The preparation of ice-cream has been conducted on more sanitary lines than in the past. The Inspector suggests that the street vendor of ice-cream and ices should be eliminated. It is proposed to conduct a series of bacteriological examinations of these products. The condition of the confectionery factories was also good. Considerable improvement has been effected in bakery and modern conditions are in existence in an increasing number of establishments.

In regard to hotels, liquor testing was performed at each hotel in the metropolitan area, and a considerable improvement in the quality of liquor sold. This is attributed to the doing away with threepenny spirits.

The Inspectors have ordered and witnessed the destruction of 60 tons 16 cwt. 16 lbs. of deteriorated food material, which had been condemned as unfit for human consumption. Included in the list are cheese, dried fruit, canned fruit, fresh fruit, fish, infants' food, honey, jam, meat, tea, vegetables, and condensed milk. Some difficulty was experienced in persuading the trader that the contents of tins were unfit for human consumption. In the majority of cases the tins were "blown," and contained gas under considerable pressure.

The question of food exposure, and that of food and drug sampling are dealt with briefly.

During the twelve months 125 prosecutions for contravention of the provisions of the Health Acts and the Food and Drug Regulations were undertaken by the Department. As already pointed out, adulteration of milk was the cause of prosecution in a number of instances. In the case of adulterated liquor 39 publicans were prosecuted, and a conviction was obtained in each case. The fines were extremely small. Various prosecutions were undertaken for breaches of other provisions of the Health Acts. In regard to polluted oysters, it appears that streptococci and colon bacilli were isolated from 1 c.cm. of the water contained in

a bottle of shelled oysters. In another instance an oyster was examined after grinding to a pulp, and it was found that it contained micro-organisms which might possibly cause serious illness if the oysters were eaten raw.

A number of new filters have been tested in the Bacteriological Institute. Two of these have been passed. Defective candles, and in one case no candle at all were found in metal cases. Filters of sandstone, charcoal, and wadding were rejected in every case. The Department has no control over private filters.

The Inspector deals with the question of nominal weights. He advises the purchaser to study the label on packages carefully, in order that he may ascertain the price he is actually paying for the article purchased. He quotes from the *Sydney Bulletin* an excellent exposure of the system of reputed measures and nominal weights.

Rat Destruction.

The Commissioner records the fact that no case of plague occurred within the twelve months. The strict enforcement of the Quarantine Regulations, and the care bestowed on the fumigation of ships appears to have proved an effective barrier to the introduction of the disease. It appears, however, that there is a marked increase in the rat population in the metropolitan area. Extensive rat proofing has been carried out, but its importance does not appear to have been sufficiently recognized by the laity. The rat-catching gang have killed 15,000 rats and nearly 1,000 mice. None of the rodents submitted for examination to the laboratory of Microbiology and Pathology were plague infected.

Mosquito Reduction.

Very little progress was made in the destruction of mosquitoes during the year. This was due to a reduction of the staff. A special report of the campaign against mosquitoes is appended, from which it appears that the task of dealing with the breeding places of *Stegomyia fasciata* has been entered upon seriously in view of the possible introduction of yellow fever.

Water Supply.

The Commissioner calls attention to the danger of leav- water tanks, used as sources of supply, unprotected. The uncertainty of the rainfall renders it impracticable to require householders to cleanse their tanks periodically. In regard to the risk of pollution of wells, the Commissioner points out that the Health Authority has no legislative power to compel persons to deal in a satisfactory manner with wells. He recognizes that regulations might be introduced in connexion with the protection and purification of water supplies, but is of opinion that the question of wells should be dealt with in an amending Act.

The Northern Office.

Dr. J. King Patrick, the Medical Inspector of North Queensland, publishes a special report dealing with the work of the Northern Office during the year. The Commissioner points out that a complete change has been made in this staff, and that the organization is now decentralized. The result of these changes has proved most advantageous.

Laboratory of Microbiology and Pathology.

A great amount of work has been conducted in the laboratory of microbiology and pathology. The Director, Dr. John J. Harris, issues a special report in which the details of this work are sketched. The Commissioner points out that the bacteriological and pathology examinations have been of the utmost value to medical practitioners throughout the State, and that the medico-legal work undertaken has been of considerable importance. He pays a high tribute to the Director. The bacteriological examinations include investigations of material for the diagnosis or exclusion of plague, tuberculosis, enteric fever, leprosy, diphtheria, gonorrhœa, malaria, pneumonia, meningitis, etc. In regard to sero-therapeutics, nearly 14,000 doses of anti-typhoid vaccine were sent out. Enquiries have been made as to the practicability of manufacturing tuberculin and anti-meningococcal serum. Dr. Harris is of opinion that the work could be done, provided the necessary equipment were attained.

Staff.

Dr. J. King Patrick was appointed Medical Inspector of North Queensland on November 23, 1914. Dr. F. E. Cox

succeeded Dr. C. H. Clatworthy as Assistant Health Officer of Brisbane on July 25, 1914. He resigned on November 21, 1914, to take up a position in the Commonwealth Quarantine Service. No other appointment to this office was made. Dr. G. P. Dickson vacated the position of Mental Officer to the Enthetic Diseases Dispensary to join the Expeditionary Forces on September 1, 1914. He was succeeded by Dr. E. D. Ahern, who, in his turn, was succeeded by Dr. H. S. Walsh. Various other changes in the staff were effected.

Two medical officers of the Department, viz., Drs. G. P. Dickson and R. H. Walsh, joined the Expeditionary Forces during the course of the year.

The report contains a considerable amount of information in addition to the matter dealt with above. It is well illustrated, and the publication of charts giving the curves of incidence of the chief infective diseases adds to its value. We congratulate the Commissioner on an excellent report.

THE NATIONAL ASSOCIATION FOR THE PREVENTION AND CURE OF CONSUMPTION.

The Annual Meeting of the National Association for the Prevention and Cure of Consumption was held in the Buildings of the Department of Public Instruction, Sydney, on January 27, 1916, Sir Philip Sydney Jones presiding.

The chief business of the meeting was the adoption of the annual report. The President pointed out that the Association had done excellent work during the year, and had made full use of the opportunities available. He called attention to the desirability of co-ordinating the work of the Association with that of sanatoria, hospitals and farm colonies. He spoke in terms of high appreciation of the manner in which the medical officers and the nurse had carried out their duties.

The annual report, which we reproduce, has been carried unanimously.

Third Annual Report from 27th January, 1915, to 31st December, 1915.

Since the date of the last annual meeting 10 monthly meetings of the Executive Committee have been held, also special meetings of the Medical Staff, and two Extraordinary General Meetings, on the 30th June and 28th July respectively, in connexion with an amendment of Article 13 of the Articles of Association, which was confirmed and added, as herewith.

Resolution passed 30th June, 1915.

"That Article 13 be amended by the addition of the following clause at the end of the Article:—

"Provided that any person who, prior to the incorporation of this Association, had become a life member of the National Association for the Prevention of Consumption, or the National Association for the Prevention and Cure of Consumption, shall be entitled to become a life member of this Association, and shall not be liable to the payment of any subscription."

The call to military duties again reduced the Medical Staff during 1915, as the valuable services of Drs. E. H. Rutledge, C. Leslie MacIntosh, and C. Nigel Smith are lost to the Dispensary for a time. Also Dr. Creswell Howle, resigned, Dr. Donald Luker being appointed in his place in April, 1915.

Dr. F. M. Suckling, Metropolitan Officer of Health, fills the place of Dr. J. S. Purdy, A.A.M.C.

Sister Harris still remains in charge at the Dispensary, and at present fulfils all the duties single-handed, the Assistant Nurse having recently resigned, and it being considered that the work could be carried on without assistance for the time being.

The sincere thanks of the Association are tendered to the Government, to the Walter and Eliza Hall Trust, and to the Hospital Saturday Fund for generous contributions towards the funds, also subscribers and private donors, whose numbers it is desired to see increased.

Several business firms have sent welcome subscriptions, and the continued successful working of the Dispensary will be their best reward.

On the 3rd of June, 1915, an order was received from Mr. Frank Grimley, Honorary Secretary of the former As-

sociation, on the Government Savings Bank of N.S.W. for the sum of £49 16s 6d, balance from the previous Association for the Prevention of Consumption, towards the funds of the existing Association for the Cure and Prevention of Consumption.

Owing to the numerous activities in connexion with the war, the room at the Town Hall, which had always been kindly placed at the disposal of the Association for meetings by the Municipal authorities, became so much in demand that it was found necessary to seek quieter quarters. The Minister for Education being applied to, the use of the Assembly Hall, in the New Education Building, was promptly granted, and the opportunity is taken publicly to thank the Minister for the convenient accommodation thus afforded.

The Executive wish to record their appreciation of the assiduous work of the Honorary Medical Staff during the year, also to mention with satisfaction the carrying out of the duties of the Sister-in-charge in the Dispensary, and in visiting.

At the Anti-tuberculosis Dispensary 368 new patients had been admitted, while 174 old patients continued in attendance during the year. The number of attendances was 9,708. The number of patients treated with tuberculin was 186. Several patients were treated for diagnostic purposes by subcutaneous injections of Koch's old tuberculin, while several patients were tested by the von Pirquet method. In all 101 patients were sent to Sanatoria, and 23 were sent into the country.

There were 25 deaths during the year. No details are given in regard to the total number of patients treated since the institution of the dispensary and to their fate, nor is any record published as to the stage of disease and its type in the cases dealt with during the year. There were 84 children under 12 years of age presumably among the new patients. The nurse visited 386 patients in their homes.

The Treasurer's statement shows a total expenditure of £515 11s 4d, including £220 for the upkeep of the dispensary, £231 for wages, and the balance in small amounts for general expenses. The income derived from donations, subsidies, etc., amounted to £506. The balance brought over from the previous year was £111 12s 1d, and the balance carried over at the close of the year was £102 2s 2d.

The following office-bearers and members of the Committee for the year 1916 were elected:—

President: Sir Philip Sydney Jones.

Vice-President: Dr. F. S. W. Zlotkowski.

Members of the Committee: Mr. A. G. D. L. Arnold, the Hon. G. F. Earp, M.L.C., Dr. F. Guy Griffiths, Dr. F. M. Suckling (acting for Dr. J. S. Purdy), the Hon. J. D. Fitzgerald, M.L.C., Mrs. A. L. Lion, Mrs. Norman Dunlop, Mrs. G. B. Robertson.

Hon. Treasurer: Mrs. G. Goldschmidt; and Secretary: Miss Vallentine.

Naval and Military.

In the 148th list, issued on March 2, 1916, we regret to read the names of Major T. G. Ross and Captain C. T. Turner among those ill in hospital. In the same list it is announced that Captain A. T. Dunlop has returned to duty.

In the 149th list, issued on March 3, 1916, it is reported that Captain C. J. Tozer is seriously ill at the First Australian General Hospital at Heliopolis.

The following has appeared in the *Commonwealth of Australia Gazette*, No. 31, under date of March 2, 1916:—

Army Medical Corps.

To be Captains—

Captain (provisional) E. C. G. Page, Australian Army Medical Corps, and William Shortt. Dated 16th February, 1916.

Thomas Bunnet Lewers. Dated 27th January, 1916. Arthur Rhodes. Dated 3rd February, 1916.

George Edward Cole. Dated 1st March, 1916. (This cancels the notification respecting the date of appointment of this officer which appeared on page 1112 of *Commonwealth of Australia Gazette*, No. 54, of 12th June, 1915.)

Quartermaster and Honorary Lieutenant S. J. H. Moreau, Sydney University Scouts. Dated 8th November, 1915. (This cancels the notification respecting this officer which appeared on page 181 of *Commonwealth of Australia Gazette*, No. 12, of 27th January, 1916.)

The termination of appointment of Captain J. F. Souter, which appeared on page 216 of *Commonwealth of Australia Gazette*, No. 17, of 3rd February, 1916, is cancelled.

To be Quartermaster and Honorary Lieutenant—

Lieutenant R. N. Teece, 26th Infantry. Dated 8th November, 1915.

Appointments Terminated—

Colonel Sir A. MacCormick. Dated 19th February, 1916.

Colonel the Honourable J. L. Beeston, C.M.G., V.D. Dated 16th February, 1916.

Lieutenant-Colonel J. B. Nash, V.D. Dated 28th January, 1916.

Lieutenant-Colonel G. A. Syme. Dated 8th February, 1916.

Lieutenant-Colonel J. W. Springthorpe and Major B. T. Zwar. Dated 19th February, 1916.

Major J. K. Richards and Captain C. R. Lister. Dated 10th February, 1916.

Captain E. V. R. Huckell. Dated 16th January, 1916.

Captain J. P. Hastings. Dated 11th January, 1916.

Captain S. G. L. Catchlove. Dated 7th January, 1916.

Captain E. W. F. Dolman. Dated 28th January, 1916.

1st Military District.

Australian Army Medical Corps—

Captain L. P. Winterbotham to be Officer Commanding Clearing Hospital, Australian Imperial Force Camp, with temporary rank and pay of Major, at rate prescribed by Universal Training Regulation 160, from 23rd November, 1915, to 2nd February, 1916.

2nd Military District.

Australian Army Medical Corps Reserve—

Honorary Major Sir A. MacCormick to be Honorary Consultant Surgeon, with honorary rank of Colonel. Dated 20th February, 1916.

3rd Military District.

Australian Army Medical Corps Reserve—

Honorary Major G. A. Syme to be Honorary Consultant Surgeon, with honorary rank of Colonel. Dated 20th February, 1916.

SCIENTIFIC HONOURS.

A cable informs us that the Council of the Royal Society of London has recommended for election as Fellows into that body Mr. J. H. Maiden, F.L.S., Director of the Botanic Gardens, Sydney, and Dr. J. A. Pollock, Professor of Physics in the University of Sydney. Mr. J. H. Maiden is a distinguished botanist, who is most esteemed for his critical review of the genus *eucalyptus* and his descriptions of the forest flora of New South Wales. The wonderful collection of plants in the National Herbarium has profited by his assiduous care in collecting examples of the plants of Australia. Future botanists will remember with enthusiasm the way in which the opportunity enjoyed by Mr. Maiden to increase the scope of the collection before settlement had cleared large areas of the country has been utilized. His book on "Useful Native Plants" contains much information of interest to medical men.

Professor Pollock will be known to many medical graduates of the University of Sydney whom he has taught during a quarter of a century. Among his early contributions to physical science, the designing of a method for measuring the local magnitude of gravity, in collaboration with his colleague, Mr. R. Trelfall, formerly Professor of Physics in

the University of Sydney, attracted attention from its mobility and its simplicity. A quartz thread, fixed at one end, was attached at the other end to a movable bearing, that could be twisted through a measured angle. A weight was suspended on a lever, arranged to act at right angles to the quartz thread, so that the thread was twisted by the action of gravity on the mass of the weight. The quartz thread was then turned until the lever carrying the weight was brought back to the horizontal. The magnitude of gravity at different places could thus be measured in terms of the torsion of the quartz thread. His investigations of most importance are those dealing with the ionization of the atmosphere. By this term is meant the electrical state of the particles forming part of the air. Professor Pollock found certain large particles charged with electricity, and established a relationship between the existence and number of these particles and the humidity of the air. These observations will be of great value when meteorology becomes a science, and the question of climate can be treated in an exact manner. Additional papers by Professor Pollock deal with the electrical theory of the carbon arc, surface tension, and the measurement of the lengths of electro-magnetic waves in conductors such as metal rods.

The Fellows of the Royal Society of London at present resident in Australia are Professor E. C. Stirling, M.D., of Adelaide; Professors W. A. Haswell, T. W. E. David and J. T. Wilson, M.B., of Sydney; and Professors Orme Masson, Baldwin Spencer, T. R. Lyle and Mr. J. H. Michell, of Melbourne.

APPEAL FOR THE HELP OF SUFFERING SERBIA.

We have been requested to insert the following appeal from the Royal Serbian Legation in London:—

The Serbian Minister in London has the honour to convey his warmest thanks to all the benevolent donors who generously have sent until now their donations through the Serbian Legation for several relief funds existing in Serbia.

At the same time, the Serbian Minister has to announce that several relief funds in Serbia are sending through him their appeal to all benevolent men and women, fathers and mothers and all philanthropic institutions, painting the horrible suffering of the Serbian refugees, the starvation of the population staying at home in Serbia, the painful scenes of the desperate mothers and frozen children. Many thousands of refugees are dispersed in the villages of Greece, in the Albanian desert, or in the rocky hollows of Montenegro, without home, without food! The life of these refugees is now nothing else than a slow dying out. This help will be a real help only if it comes as quickly as possible.

Such appeals have been made from the following funds:—

- The Serbian Archbishop of Belgrade Relief Fund for the Families of the Fighting Men.
- The St. Helen's Relief Fund for the Orphans, whose fathers were killed in the war.
- The Parliamentary Fund for the Relief of Serbian Refugees.
- The Serbian Red Cross Fund for the Wounded Soldiers.

The generous donors, who would help any of the above mentioned funds, are kindly requested to send their contributions through the Serbian Legation, 195 Queen's Gate, London, S.W.

Please do not forget to mark for which of the funds the donation is destined, which will be duly acknowledged.

The Minister of Defence stated on March 7, 1916, that a communication had been received from the High Commissioner to the effect that Lieutenant-Colonel J. W. Barrett had been appointed to a position as an Imperial officer with the consent of the Commonwealth Government. It appears that Lieutenant-Colonel Barrett's appointment in the Commonwealth Service terminated on February 28, 1916.

Special Correspondence.

(By Our Special Correspondent.)

LONDON LETTER.

The Red Cross Budget.

The report of the year's work of the British Red Cross Society and the Order of St. John of Jerusalem, published on December 22, 1915, deals with various phases of the war work, on which £1,642,271 had been spent up to October.

In the year following the combination of the forces of the two societies, the income reached the total of £1,864,036. About half the contribution went into the general fund, but more than £500,000 was ear-marked for the provision and maintenance of motor ambulances for the transport of wounded.

The old horse ambulances have been replaced by up-to-date motors, and on October 20 the societies had 897 of these at work, making, with lorries and repair waggons, touring cars, and motor-cycles, a fleet of 1,801 vehicles.

For hospital trains, £37,995 was contributed. The sum spent on motor ambulances was £446,400, and the labour and maintenance cost £169,562. The greater part of the fleet was working in France and Flanders, the remainder being distributed between Great Britain, Egypt, Malta, Serbia and Italy.

In addition, there was spent in France and Flanders £293,509, of which £149,838 was for "equipment, general, and medical stores." To this must be added £42,818 for the St. John Hospital at Etaples, and £17,643 for the Entéric Hospital at Calais, so that in the aggregate the societies have spent nearly a million pounds for the welfare of the sick and wounded on the Western front.

"Malta and the Near East" cost £194,812, the bulk of which was spent for the sick and wounded from Gallipoli. For the wounded soldiers of Serbia and Montenegro, the societies spent £43,846, for the Persian Gulf Expedition £5,611, and for Italy £936.

Stores, meaning hospital equipment and medical necessities and comforts of all kinds, which were purchased during the year, cost £263,573, in addition to which nearly £200,000 worth were presented to the societies by the generous public.

Large sums have been spent on the hospitals which the societies have established in London and at Netley and Etaples. Assistance has also been given to organizations for the care of blinded and crippled sailors and soldiers.

Founder's Day at Eton.

The four hundred and seventy-fourth anniversary of the founding of Eton College by King Henry VI. was commemorated on December 7, 1915. At the special services held in the College Chapel, processional psalms were chanted and prayers offered to the memory of the founder and all other benefactors, including Henry, Cardinal Beaufort, William of Waynflete, Roger Lupton, Sir Henry Savile, Sir Henry Wootton, Sir Francis Rous, Richard Allestree, Henry Godolphin, Edward Waddington, Jonathan Davies, Thomas Duke, of Newcastle, John Wilder, and others. In the morning the anthem "When the Ear Heard Him" (Händel) was rendered, and in the evening "Thou Wilt Keep Him in Perfect Peace" (Wesley). The statue of the founder in the quadrangle was decked with a wreath of laurels, and the boys were given a whole holiday. Owing to the war and the indisposition of the Provost and Vice-Provost, the banquet usually given in College Hall was abandoned.

Instead of taking part in their usual games, the majority of the boys spent their holiday as war workers at Didcot, this being the second time they have lent a willing hand to the military authorities there. As on the last occasion, the opportunity was limited to members of the Officers Training Corps. But practically every one volunteered his services, with the result that over 500 took part, including Prince Henry, the King's third son, who is a member of the Corps. After morning service the Corps was paraded by

Colonel Robeson, and marched to the Great Western Railway Station at Windsor, where a special train was provided.

The boys were attired in all manner of civilian clothes—some in boating flannels, and others even wore overalls used by them as munition workers. Nearly all wore their house colour caps, and presented a novel appearance. They carried haversacks and water bottles, with overcoats slung on their backs.

Mr. Tennant stated in the House of Commons in January last that 1,365 cases of enteric fever had been reported as having occurred among British troops in France and Belgium from the beginning of hostilities to the end of November, 1915. The diagnosis had been made in 1,150 cases after bacteriological examination. In 579 cases, in which anti-typhoid inoculation had been practised, there had been 35 deaths, and in 571 cases in which there had been no anti-typhoid inoculation, there had been 116 deaths.

According to a report published in the daily press of March 3, 1916, Dr. Doyle, M.L.C., of Glebe, New South Wales, is seriously ill at Newcastle.

We learn that the Hon. Dr. R. Arthur, M.L.A., has been elected a Vice-President of the Eugenics Education Society of Great Britain.

Proceedings of the Australasian Medical Boards.

VICTORIA.

The following have been registered under the provisions of the "Medical Act, 1915," as duly qualified medical practitioners:—

Geoffrey Fenton, 24 Cromwell Road, Hawksburn, M.B. et Ch.B., Melb., 1915.

John Shaw Mackay, c/o Dr. Hamilton Russell, Cliveden Mansions, East Melbourne, M.B. et Ch.B., Melb., 1915.

Medical Appointments Vacant, etc.

*For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvii.

Texas District Hospital, Queensland, Medical Officer.
Brisbane Hospital, Resident Medical Officer.
Hobart General Hospital, Junior House Surgeon.
Royal Alexandra Hospital for Children, Camperdown, Senior Resident Medical Officer.
Wanganui Hospital and Charitable Aid Board, Medical Superintendent.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
WESTERN AUSTRALIA.	
(Hon. Sec., 230 St. George's Terrace, Perth.)	Swan District Medical Officer. All Contract Practice Appointments in Western Australia.

Branch.

APPOINTMENTS.

NEW SOUTH WALES.	Department of Public Instruction—New Appointments as Medical Officer, Ophthalmic Surgeon, Ear, Nose and Throat Surgeon, Physician. Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Goulburn F.S. Association. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance Association and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phoenix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, Auburn, and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
(Hon. Sec., 30-34 Elizabeth Street, Sydney.)	

SOUTH AUSTRALIA.

(Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp., Adelaide.
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QUEENSLAND.

(Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United F.S. Institute. Croydon Hospital. Ladley Hospital, Medical Officer
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NEW ZEALAND: WELLINGTON DIVISION.

Hon. Sec., Wellington.)	F.S. Lodges, Wellington, N.Z.
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Diary for the Month.

- Mar. 15.—West. Aust. Branch, B.M.A., General.
Mar. 16.—N.S.W. Branch (Last day for Nomination of Candidates for Election of Council).
Mar. 21.—N.S.W. Branch, B.M.A., Executive and Finance Committee, Ethics Committee.
Mar. 24.—Q. Branch, B.M.A., Council.
Mar. 28.—N.S.W. Branch, B.M.A., Medical Politics Committee, Organization and Science Committee.
Mar. 29.—Vic. Branch, B.M.A., Council.
Mar. 30.—South Aust. Branch, B.M.A., Branch.
Mar. 30.—N.S.W. Branch (Return of Ballot Papers for Election of Council of Branch).
Mar. 31.—N.S.W. Branch, B.M.A., Annual Meeting.
Apr. 4.—N.S.W. Branch, B.M.A., Council (Quarterly).
Apr. 5.—Vic. Branch, B.M.A., Branch.
Apr. 7.—Q. Branch, B.M.A., Branch.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.
Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.
All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.